

# MINING WORLD

NOVEMBER, 1949

VOL. 37 No. 12

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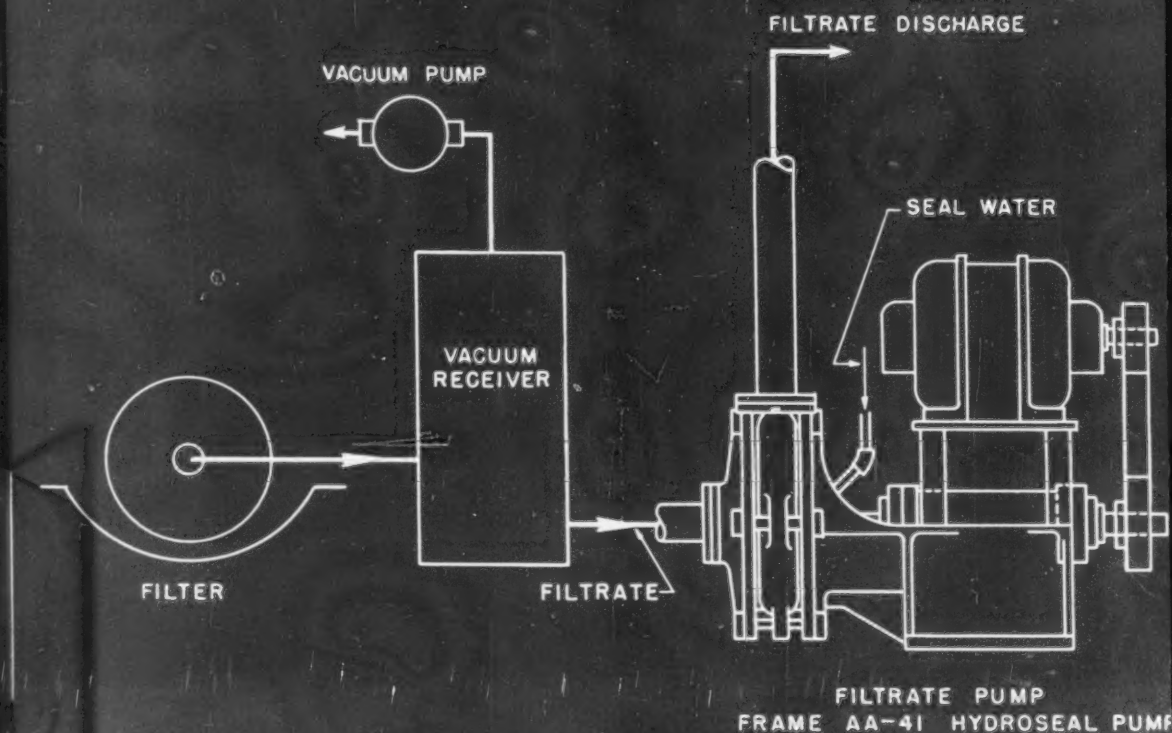
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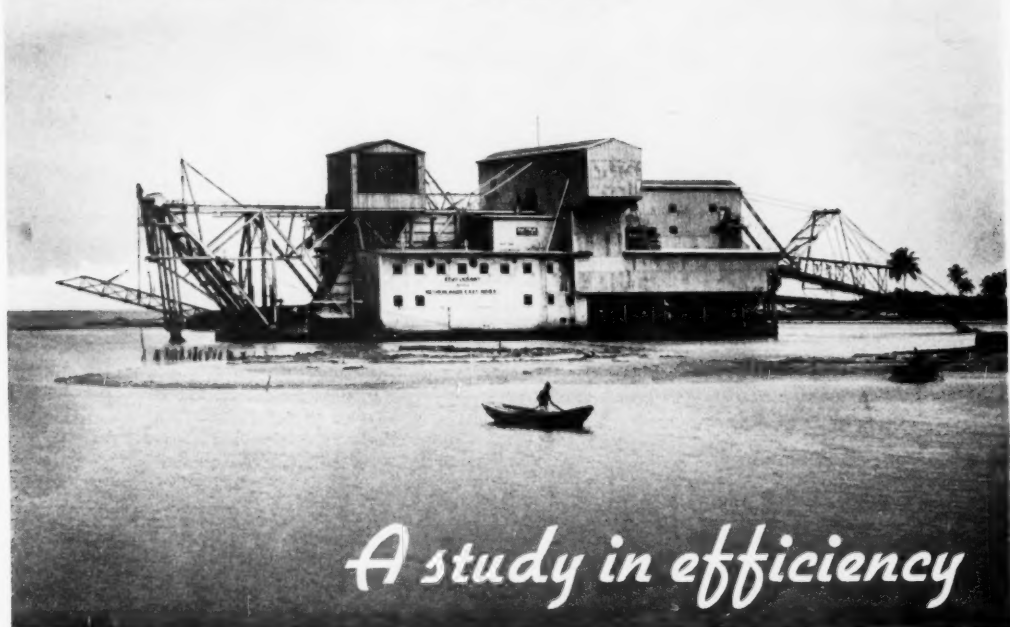
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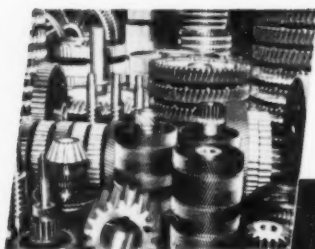


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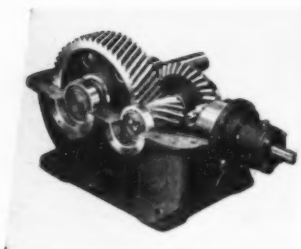
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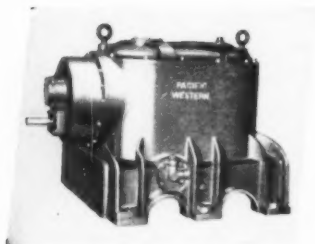
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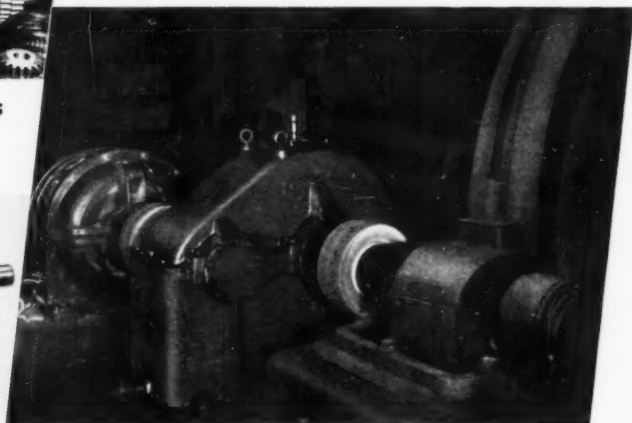
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speed reducer**



**Vertical-shaft  
speed reducer**

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GEARS  
FOR  
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50  
YEARS**

A typical mining industry application of Pacific-Western speed reducers is shown in the photograph below of a ball-mill drive.



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\*Insist on mark of full compliance—P-102-BM—at 12' intervals on any mine cable you buy.

**ANACONDA**

*Securityflex*

**MINE CABLE**



NOVEMBER, 1949

3

# This oil...



## ... fights Acid Action of "On and Off" operation THE MAJOR CAUSE OF ENGINE WEAR

### Unique "X" Safety Factor in Shell X-100 Motor Oil Counteracts Acid Action

It's not friction, as generally believed, that causes the most engine wear.

It's Acid Action—chemical etching of engine parts that take place in the low engine temperatures of "On and Off" operation.

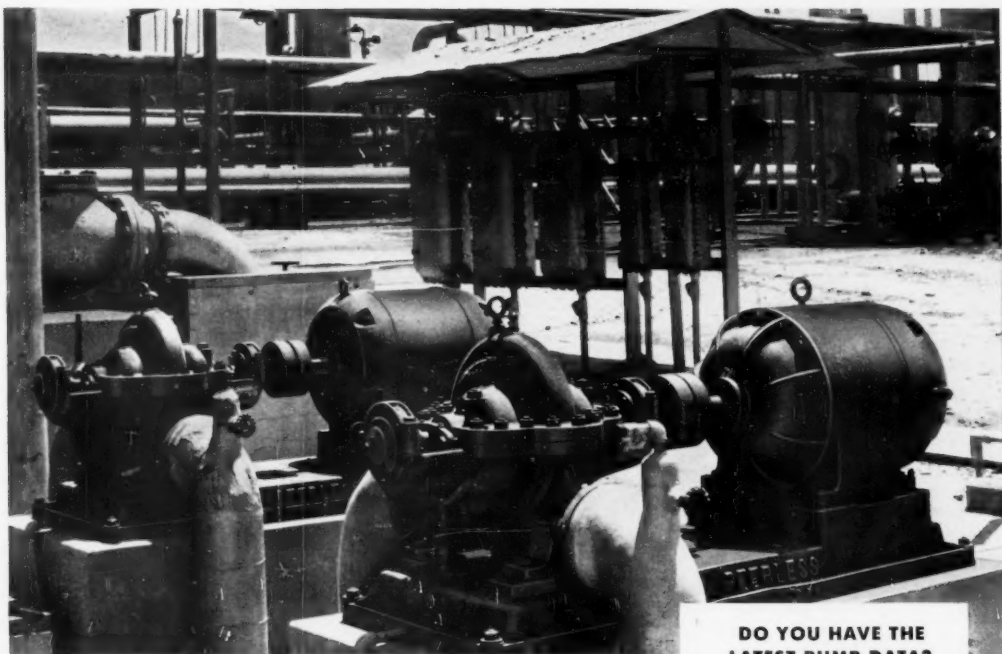
Intermittent use . . . long runs at idling speed . . . frequent stopping and starting—under such conditions, engines seldom warm up to efficient operating temperatures. They run "cold." Hence, combustion may be incomplete and partially burned fuel gases and moisture attack the smoothly polished metal surfaces *chemically*. It's this biting Acid Action that accounts for up to 90% of engine wear!

Shell Research worked all out on this problem . . . developed a unique "X" safety factor to combat Acid Action. Now, 2½ million miles of road testing and millions of miles of use by motorists have proved conclusively that with this "X" safety factor Acid Action is effectively counteracted—engine life is prolonged.

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### *It's Incomparable!*

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From plan to plant there's a Peerless horizontal centrifugal pump that meets your needs. For the diversified, continuous duty services of private industries and public projects, Peerless Pumps incorporate many proved advantages in design and construction for extended pump life and operative economy.

All along your flow lines, Peerless can provide pumps incorporating the latest principles of hydraulic practice and experience plus the versatility and efficiency you require for peerless pumping performance.

For example, the pumps shown above are single stage, double suction, general purpose Type A pumps, a comprehensive line of Peerless pumps offering a capacity range from 50 to 60,000 gpm. There are scores of other Peerless types, hundreds of other Peerless models for thousands of pumping applications. Peerless furnishes horizontals for handling solids in suspension as well as for clear liquids. There are pumps for boosting, circulating,

transferring and filtering. They can handle volatile L-P Gases or tricky acid, basic and salt solutions. They can move liquids at high temperatures or they can provide water (or foam) for *Underwriters' approved* fire protection. Duty can be intermittent or continuous; both single and multi-stage units, with the type of drive you desire, are available, meeting widest head and capacity conditions. Pump and driver are engineered as a unit, tested in a modern hydraulic laboratory that duplicates actual field conditions, to match or exceed purchasers' expectations.

Plan with Peerless for all your needs for pumps. Peerless field and sales engineers are located in all principal cities to help you whenever and wherever there's a pump in your plans. For pump engineering information or service, call on them, or if you prefer, write for the latest pump engineering data. The chart at the right lists a number of the types of Peerless horizontal pump bulletins in which you will be interested.

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Pump Service	Bulletin No.
Water Supply	B-1300
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Hi-Pressure	B-310
Acids and Caustics	D-2400
Process Services	B-803
All-purpose Pumps	B-2301



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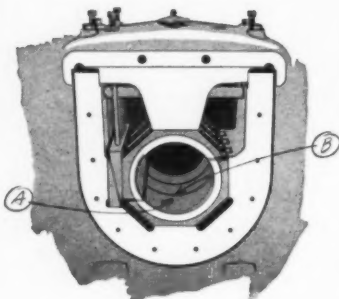
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VERTICAL AND HORIZONTAL  
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# STANDARD ENGINEER'S CASE FILE



## Case 1145—Cutting Lube Cost in General Equipment



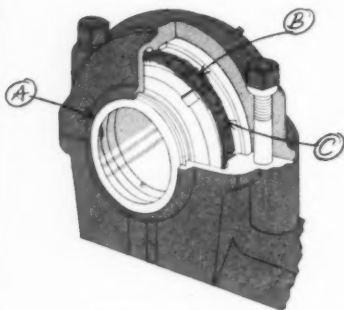
AIR COMPRESSOR MAIN BEARING

Calol Multi-Service Oils in air compressors decreased lubricant consumption as much as 20%. Highly efficient in many machines, including Diesel engines, pumps, enclosed reduction gears and their integral bearings. Come in six grades: 45X, 50X, 55X, 65X, 75X, 85X. Approximately SAE 10 to SAE 50.

- A. Contain oxidation-resistant compounds ... prevent formation of varnish and lacquer on bearing surfaces, engine cylinders, pistons, etc.
- B. Special compound assures lubrication at high temperatures — has inherent tendency to "run toward" hot surfaces ... spreads uniformly and rapidly.

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## Case 1165—Keeping Grease in Bearings in Hot Conditions



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- A. Very high melting point minimizes seepage through housings and seals.
- B. Feeds evenly to all bearing surfaces.
- C. Remains soft in cold temperatures — assures good pumpability and thorough lubrication.

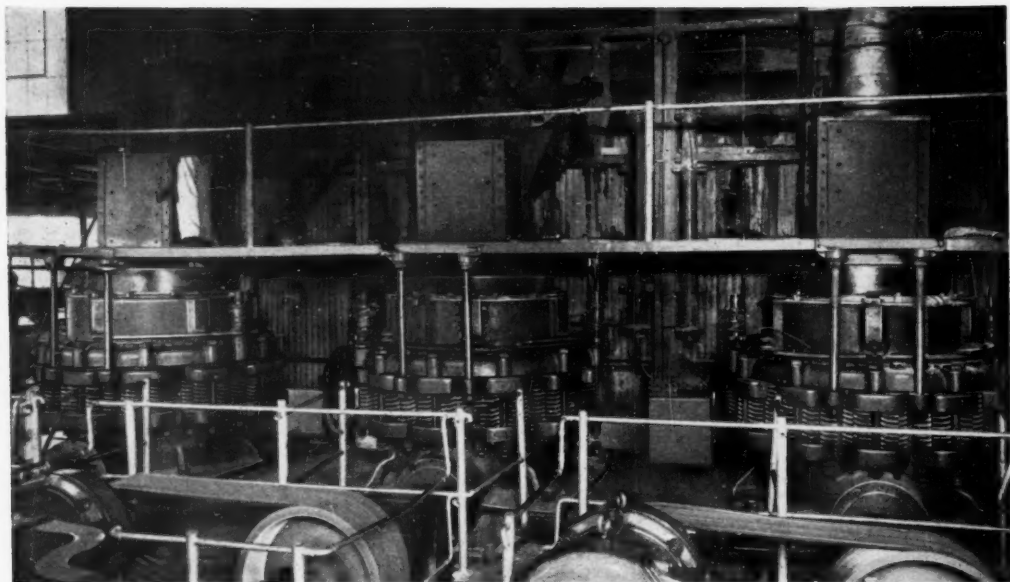
To give Calol S.A. Grease unusual heat-resistant qualities, it is made from selected heat-resistant oils and a special sodium-aluminum soap base.

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STANDARD TECHNICAL SERVICE will make your maintenance job easier. If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will gladly give you expert help; or write Standard of California, 225 Bush St., San Francisco 20, California.



FOR EVERY NEED A **STANDARD OF CALIFORNIA** JOB-PROVED PRODUCT



**Another Outstanding mining company**  
**uses *Symons Cones***  
**for high capacity fine reduction crushing**

THE Marievale Consolidated Mines, Ltd., one of the many highly efficient gold producers in South Africa, uses one 4 1/4' Standard and two 4' Short Head Symons Cones for volume production of fine products. This installation is typical of the worldwide preference for Symons Cone Crushers wherever fine crushing is done in quantity. For large or small operations, for new plants or modern-

ized existing plants, the Symons Cone, because of its capacity to produce enormous tonnages of finer crushed sizes, will increase plant output and lower the cost of reduction crushing operations. Symons Cone Crushers are available in three types—Standard, Short Head and Intermediate — and in a wide range of sizes to fit most requirements of feed, product and tonnage.

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 ores and  
 industrial minerals*



Gyratory and  
 Jaw Crushers



Symons Cone  
 Crushers



Vibrating Screens  
 and Grizzlies



Grinding  
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Diesel  
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# *unmatched* for drilling speed and power



Blast hole drilling with CP-55 Diamond Drill

With no increase in over-all weight — 160 pounds — the easy-handling, CP-55 DIAMOND DRILL is 25% more powerful than the famous CP-5 — thanks to a newly designed rotary air motor. It's economical, too — with minimum air consumption per foot drilled.

Conservatively rated at 500 feet with E-EX fittings. Designed for both coring and non-coring operations. Blast hole couplings supplied when desired.

*Write for Bulletin 318.*



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**“ NOW WE HAVE  
NO LOSS OF TIME ”**

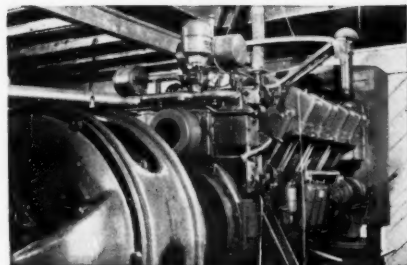
• • • says Oscar Holbrook, engineer for the Crystal Fluorspar Company, Elizabethtown, Ill. “ ‘Caterpillar’ Diesel power,” he continues, “has saved us many dollars over the power we formerly used.”

Through a 125-kw. generator, the big D17000 powers the entire plant shown here. It’s on the job day in and day out. And that’s not unusual for “Cat” Diesels. Underground and in open pits, on placer dredges and in hydraulic operations, and in scores of mining jobs throughout the world, these dependable engines are setting no-down-time records that sometimes seem incredible.

But they’re not hard to believe when you consider the unending research, advanced engineering and careful construction that go into “Caterpillar” products. They’re all built for long life and hard service—to make profits for their owners.

See your “Caterpillar” dealer for further facts and figures about these simple, sturdy, compact power plants. Let him show you what they can do for you.

CATERPILLAR TRACTOR CO., SAN LEANDRO, CALIFORNIA; PEORIA, ILLINOIS  
NOVEMBER, 1949



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# Facts you should know

## about the New General Motors Diesel Engine-Torque Converter Unit



Two 190 H.P. 6-Cylinder GM Diesel Engine-Torque Converter units power the new 34-ton Euclid LFFD tandem axle rear-dump. Each engine drives one rear axle, eliminating the conventional inter-axle power divider. A 3-speed Allison Toramatic transmission does away with the clutch pedal and manual shifting. Designed for off-the-highway haulage of large tonnage, the mammoth LFFD has a top speed of 25.4 m.p.h. with full payload.

**ONE MANUFACTURER ONE RESPONSIBILITY** The new torque converter is specifically designed and manufactured by General Motors as an integral unit with the Series 71 two-cycle Diesel engine. Result: a big saving in size and weight—no compromise designs—no divided responsibility.

### **AUTOMATIC SHIFT FROM TORQUE MULTIPLICATION TO FLUID COUPLING**

Desirable features and advantages of both torque converter and fluid coupling are combined in this converter. Continuous *automatic* transition from 3.6-to-1 torque ratio at stall speed to 1-to-1 torque ratio in fluid coupling. Unit goes into fluid coupling whenever load requirements equal engine torque, without regard to output shaft speed.

### **MORE WORK IN LESS TIME**

This new power unit gets the most work done in the least time. Because it is not rigidly geared to the load, the engine responds to the throttle and immediately accelerates to a high output range regardless of the speed of the load.

### **FREEDOM FROM SHOCK LOADS**

Transmission of power through a liquid, cushions both engine and

driven machinery from sudden shock loads. Operation is liquid-smooth (free from jerks) at any speed or throttle setting.

### **FREEDOM FROM STALLS WITH OVERLOAD**

Fluid circuit prevents engine stalling under any load condition. Ability to exert a smooth pull at any output shaft speed down to zero permits GM Converter-equipped machines to do some operations that are impossible with conventional units.

**EASE OF HANDLING** Eliminates time lost in unnecessary low gear operation. Operator fatigue is reduced. Work is speeded up with less effort on the part of the operator.

### **WIDE RANGE OF MODELS**

The new GM Diesel Engine-Torque Converter unit is made available in 3-, 4- and 6-cylinder single engine units, Twin 4 and Twin 6 multiple engine units with engine ratings from 64 to 294 B.H.P. to meet a wide range of power requirements. Write or wire for full details.

## **DETROIT DIESEL ENGINE DIVISION**

SINGLE ENGINES... Up to 200 H.P. DETROIT 28, MICHIGAN MULTIPLE UNITS... Up to 800 H.P.

**GENERAL MOTORS**

**DIESEL BRAVN WITHOUT THE BULK**



# MINING WORLD

with which is combined  
THE MINING JOURNAL

**A Miller Freeman Publication**

Published monthly except in April when publication is semi-monthly

**NOVEMBER, 1949**

VOL. 11 No. 12

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### PUBLISHING OFFICE

San Francisco 5, Calif. 121 Second Street  
Garfield 1-5887

### BRANCH OFFICES

Seattle 4, Wash. 71 Columbia St., MAIn 1626  
Los Angeles 13, Calif. 124 W. Fourth St., MUtual 8196  
Vancouver, B. C. Royal Bank Bldg., MARine 1520  
New York 17, 370 Lexington Ave., MUrray-Hill 3-9295  
Chicago 4556 N. Paulina, SUnnyside 4-6558

GENERAL MANAGER, San Francisco, M. F. HOLSINGER  
EDITOR, San Francisco, JOHN B. DORSH  
ASSOCIATE EDITOR, Vancouver, CHARLES L. SHAW  
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Published by  
AMERICAN TRADE JOURNALS, INC.  
MILLER FREEMAN, President  
L. E. SMITH, Vice-President  
W. B. FREEMAN, Publisher

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### SUBSCRIPTION RATES

U. S., North, South and Central  
American Countries \$3.00  
Other Countries \$4.00  
Single Copies \$0.35  
Directory Number \$2.00

## DRIFTS AND CROSSCUTS

### More on O'Mahoney Bill

Evidently with the blessing of the Administration, the O'Mahoney mine subsidy bill to promote exploration and foster conservation of strategic minerals cleared the Senate and was sent to the House shortly before this issue went to press. As explained in *Drifts and Crosscuts* for October, it is feared that this bill arranging for a National Minerals Conservation Board may provide the beginning of government controls of metals.

A number of amendments were tacked onto the bill as it emerged from the Senate after passage by voice vote. One, suggested by Senator Williams of Delaware, was to limit the cost of administering the bill to \$80,000,000 yearly, the program to run for five years. An amendment tacked on by Senator Cordon of Oregon will require mining companies making a profit on an exploration project that is being operated with U. S. aid to repay the federal Treasury. The companies would have to share only a "fair proportion" of the profits as liabilities to these companies would be limited to profits on the exploration projects. Therefore, if no profit is made on the project, the aid would be in the form of a grant.

No payment on any part of the subsidies spent for conservation projects will be required.

The bill's necessity for national defense was argued by supporters and another reason for the bill, although not publicly discussed, is to provide unemployment relief in the mining industry. Backers of the bill have hesitated to discuss the unemployment phase because of the opinion voiced by the Bureau of the Budget that if action to relieve unemployment in affected mining areas was deemed necessary "other means would have to be found than the use of production subsidies."

Opponents of the bill, especially Senator Lodge of Massachusetts, said on the Senate floor that he could not comprehend how the bill could be a defense measure when the Secretary of Defense had not been consulted as to the effect the bill would have on the various points embodied in it. O'Mahoney admitted that Secretary of Defense Johnson had not been consulted but that the Munitions Board had indicated that it was "quite agreeable" to the legislation. Another dissension was voiced by Senator Wherry of Nebraska who said that the bill would duplicate the provisions of the existing defense stockpiling program.

At this writing mining state congressmen say they will try to get House action on the bill this session and it is the intention of Engle of California to hold hearings on the bill for the purpose of getting the reaction of the industry. Depending on whether or not the industry will endorse the bill in principle, Engle indicated that an attempt would be made to get it out of committee and through the House before the end of the session. Engle also said that he thought that the bill was a poor "crutch" for the mining industry.

Under the O'Mahoney bill metals and minerals conservation would be accomplished by the maintenance, either in stand-by condition or in partial or full operation, properties, which, without government aid, would not operate. Government aid would be given in sharing the cost of maintenance or by purchasing the output of the properties if they continued to operate. Promotion of exploration would be shared by the government contributing to the cost of projects in conjunction with private mining companies, the projects to offer "reasonable promise" of discovery of unknown or undeveloped sources of metals and minerals.

### End of Leasing System in Sight

Certain mines of California's Mother Lode, the recently reopened Independence mine of the Alaska Pacific Con-



**TIGER BRAND Field Specialist** is shown here checking a cross-wind on a drum as part of equipment check to insure proper wire rope application. Even such a small cross-wind as this can cause unnecessary abrasion and reduce life of the rope.

## How to stop wire rope trouble—before it starts

Here's a man who can help you plan for maximum wire rope performance. He's one of Columbia Steel Company's **Tiger Brand Wire Rope Specialists**. These skilled service engineers will give your equipment a complete check to make sure all parts are working in long-wear harmony, point out any necessary changes and recommend the proper rope to use. Sheave diameters, sheave grooves, fleet angles, loads handled, service records . . . these are just some of the items on the Specialist's check-list.

Tough **Tiger Brand** is one rope that's under constant control from raw ore right on through to the finish. It's engineered for long wear . . . and to make sure you get all the stamina that's put in it, you are welcome to the services of a **Tiger Brand Specialist** . . . without charge or obligation. Contact your **Tiger Brand Distributor** or any Columbia Steel Company Office.

**Columbia Steel Company** • San Francisco  
Los Angeles • Portland • Seattle • Salt Lake City



### Tiger Brand Tip

It's not good practice to have more than one layer of rope on a drum. But if this can't be helped, the added layers should not cross-wind but should wind uniformly across the drum in each succeeding layer of rope.



## U-S-S TIGER BRAND Wire Rope

UNITED STATES STEEL



solidated Mining Company in the Willow Creek district, Alaska, mines at Cripple Creek, Colorado, and other places owe their present place in the sun to the system of mine leasers—lessees—that allows them to operate at some profit. Briefly, the system works on the principle of the owner or lease holder letting sections of the mine to small groups of miners, the owner supplying certain tools and services, the operating miners the labor and in some places the powder and other goods, and the profits, if any result, are split among the principals.

Now the proposal of broadening the federal Social Security Act by raising the rate for worker and employee to 1½ percent on January 1, 1950, threatens the existence of the leasing system. The proposal says, in effect, that the lessee or licensee of space within a mine where substantially all of the returns or product of the work performed is to be sold or turned over to the lessor or licensor is subject to tax for social security. The language adds to the lists of those already receiving some form of social security 600,000 employees of non-profit institutions, 4,500,000 self employed and 4,100,000 local and state employees.

Miners may be interested in the following analysis of the proposal given by Representative Daniel Reed of New York: "This definition of 'employee' is the most vicious tax statute ever drawn and would lead to complete upsetting of established business practices through the whole country. The adoption of this new definition means that congress has delegated its tax writing authority to the Treasury department in violation of one of the most basic principles of the constitution which vests the power to tax in congress."

This proposal will, it is believed, make the leaser as rare as a dodo. Those who are familiar with the mine leasing system know that the leaser sells his ore through the lessor who, in effect, acts as his smelter agent. And what will happen to the men who are still mining at Grass Valley, Cripple Creek and Independence, the split-check worker, the block leaser and the contractor?

## Atom Secrecy and Peace

"On July 10, three atomic bomb explosions were recorded distinctly in Lat. 46 degrees N. and Long. 53 degrees E. of Paris. Further doubt was impossible.

"Secretary of Defense Johnson informed President Truman at once and the latter called an urgent secret meeting immediately at Blair House. Admiral Blandy, the great American atomic expert, proposed a number of defense measures, among them dispersal of factories, constructing atomic belts around the principal cities to explode hostile bombs at a distance, constructing new aerodromes for supersonic interceptors, and other measures.

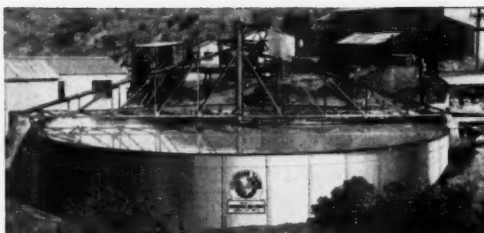
"At a military meeting the following day, General Eisenhower took up his pet theory and said that a world-wide system of military bases was useless." (Free translation from *Samedi-Soir*, Paris).

When the information about the Russians having the bomb became public in late September, the most certain consequence was that it meant greater expenditures by the United States to give military and economic strength to the nations that are resisting the Russian communist drive for world domination. After the news of the atomic explosion, more outlay for defense was certain.

To supply the items that will make up this strength, minerals will be needed in quantity. More machines to develop, mine, process and reduce ores and concentrates will be manufactured, more transportation systems will be needed to move the crude and finished product and, all in all, the mining fraternity will be called upon to provide the essential knowledge and administration for the expansion of the industry.

—J. B. D.

NOVEMBER, 1949



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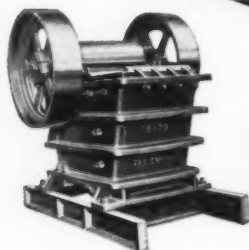
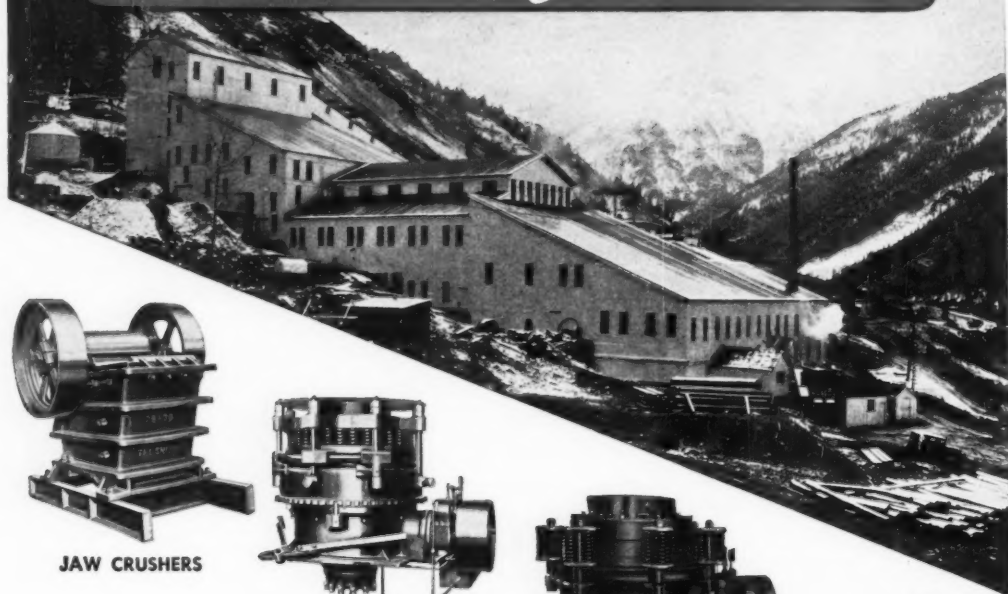
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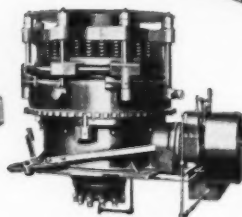
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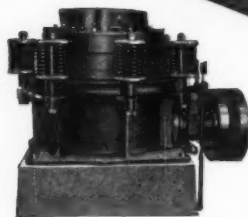
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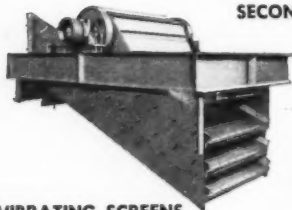
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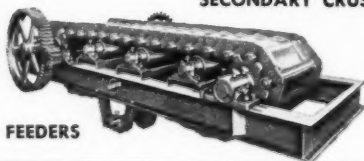
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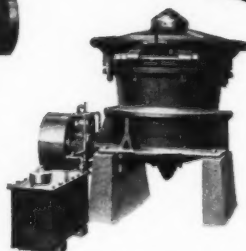
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## MUNITIONS BOARD CHAIRMANSHIP STILL OPEN; POSITION CALLS FOR MAN OF WIDE EXPERIENCE

It is by no means unprecedented, but somewhat unusual, for a Presidential nominee who has passed the severe tests of committee hearings and has been recommended for approval to the Senate to be turned down by that body. That, however, is what happened to U. S. Steel vice-president Carl Ilgenfritz, slated for Munitions Board Chairman. The vote of 40 to 28 was a set-back for the Administration, despite the arguments on the Senate Floor. The importance of this position is not generally known and should be more widely publicized. It is not confined to stockpiling.

Subject to the authority and direction of the Secretary of Defense, the Board (and the civilian chairman really is the boss) shall perform the following duties in support of strategic and logistic plans and in consonance with the guidance in those fields provided by the Joint Chiefs of Staff, and such other duties as the Secretary of Defense may prescribe:

1. Coordination of the appropriate activities with regard to industrial matters, including the procurement, production and distribution plans of the Department of Defense;

2. Planning for the military aspects of industrial mobilization;

3. Assignment of procurement responsibilities among the several military departments and planning standardization of specifications and for the greatest practicable allocation of purchase authority of technical equipment and common-use items on the basis of single procurement;

4. Preparation of estimates of potential production, procurement, and personnel for use in evaluation of the logistic feasibility of strategic operations;

5. Determination of relative priorities of the various segments of the military procurement programs;

6. Supervision of such subordinate agencies as are or may be created to consider the subjects falling within the scope of the Board's responsibilities;

7. Regrouping, combining, or dissolving of existing interservice agencies operating in the fields of procurement, production and distribution in such manner as to promote efficiency and economy;

8. Maintenance of liaison with other departments and agencies for the proper correlation of military requirements with the civilian economy, particularly in regard to the procurement or disposition of stra-

tegic and critical material and the maintenance of adequate reserves of such material, and making recommendations as to policies in connection therewith; and

9. Assembly and review of material and personnel requirements presented by the joint Chiefs of Staff and by the production, procurement, and distribution agencies assigned to meet military needs, and making recommendations thereon to the Secretary of Defense.

All in all, you will note, not a job to be filled with any Tom, Dick or Harry as a political plum even though this is one of the few government jobs paying \$14,000 a year. The specifications sound like a position for which a civilian corporation would be glad to pay \$100,000 to get the right man.

### ● "Peril Point" Clause

At this writing the big fight in the Senate is over the "peril point" clauses in the Trade Treaties Act. The law has read that the Tariff Commission is required to report to the President prior to the start of tariff reduction negotiations and advise him whether the proposed cuts would imperil American industry. The Administration is fighting vigorously to knock out this provision which, to the layman, seems eminently fair.

### ● Devaluation and Tariffs

It is being pointed out that the widespread currency devaluation is equivalent to an extensive slash in tariffs as far as domestic industry is concerned. So we progress further

## O'Mahoney Bill's Backers Drive for House Approval

Last-minute advice from Washington as to the possible fate of the mine subsidy bill, mentioned on other pages of this issue of MINING WORLD, indicates that a number of hurdles must be jumped in the House of Representatives before the measure becomes law. The backers of the bill have to get the non-too-friendly House Rules Committee to suspend the rules and bring the measure directly to the floor, this in the face of the hope of adjournment on October 15 and the danger of one dissenter torpedoing the one frail hope of the industry for a subsidy during the current session of Congress because unanimous consent is needed to bring the bill to the floor. Mining state lawmakers and other sponsors of the O'Mahoney bill admit suspension of rules is just about the last hope for a subsidy, but, nevertheless, they are going to press the fight.

toward free trade even before Geneva gets busy under the new Trade Treaties Act.

According to Senator Jenner, 409 more products will be subject to discussion leading to cuts in tariffs under the Trade Treaties Act. This, however, is just the start.

### ● Baring Bill Answers Need

The passage of the O'Mahoney-Interior bill S. 2105, which would set up a separate group of stockpiles under the General Services Administration, would add the third, at least, to present stockpile possibilities. Actually, the amount of government stockpiling is not known for the Armed Services have a habit of doing a little hoarding on their own. In addition to the national stockpiles under the supervision of the Munitions Board, which Congress locked up tightly against the possibility of their being used for dumping and market manipulation by the Government, there is an obscure provision in the CCC Act which permits that corporation to swap agricultural surpluses for strategic and critical minerals and metals. Here again, as in the case of S. 2105, the Munitions Board is under no obligation to take the material procured and there is nothing in the law that would prevent CCC from building up a rival stockpile, or to resell to industry in any manner in which it sees fit. With so many fingers in the metals and minerals pie, the greater the need for a Federal Minerals Coordinator as provided for in the Baring bill, H.R. 6082. The more one realizes the number of agencies, bureaus, committees and boards mixed up in the mining business, directly or indirectly, the more sensible the Baring proposal seems.

### ● Harriman Appointment

If President Truman cannot shoe-horn Mon Wallgren into the chairmanship of the National Security Resources Board against Senate opposition, it is rumored he may appoint Averill Harriman to the post. Harriman, when Secretary of Commerce, will long be remembered by mining men as responsible for the veto of the Allen bill which extended the premium price plan for copper, lead and zinc, and consequently is responsible for the rough time that segment of the mining industry has been through lately.

### ● Crowther Statement on Gold

One of the items which continually pops up in any discussion of the British financial crisis is the possibility of improving the dollar situation

*Continued on Page 67*



**TOP** (left to right): General Electric Company was strongly represented at the congress. Among them were W. B. Clark (l.), sales engineer, mining division, Salt Lake City, and J. L. Bauer (r.), sales engineer, also of Salt Lake City, who were snapped by the MINING WORLD camera as they talked shop with W. E. Fenzi, general superintendent, Marenco Branch, Phelps Dodge Corporation. A. C. Struthers, mine financier, and F. H. Mitchell, general manager, Highland Surprise Mining Company; R. M. Hardy, Jr., and F. M. Hardy, Sunshine Mining Company; N. J. Osborne, purchasing agent, Sunshine Mining Company, and R. W. Persons, manager, Drill Steel Division, Crucible Steel Company.

**BOTTOM** (left to right): A. J. Esser, purchasing agent, Coeur d'Alene Hardware & Foundry Company. Representatives of Gardner-Denver Company were C. J. Manley, district manager, Denver, and F. B. Matheson, manager, Salt Lake City; Kuno Daerr, Jr., general manager, East Helena Branch, American Smelting & Refining Company; Harold M. Holkestad, sales engineer, Colorado Fuel and Iron Company. Among the personnel representing Idaho's Sunshine Mining Company were J. B. Cox and Ross Leisk, general manager; John Bley, mine superintendent, Chelan Division, Howe Sound Company; James Newton, regional administrator, Securities and Exchange Commission.

## AMC'S SPOKANE MEETING

**Change in administering public lands, revision of mine tax laws, stockpiling security, labor relations, gold and silver market discussed**

Voted as one of the best conventions ever held by the American Mining Congress, the gathering in Spokane in late September came out strongly in favor of the following points which are displayed in brief by the resolutions:

1. End government extravagance and the growth of federal authority over the lives and fortunes of our people.
2. Resolutely oppose the advance of Communism in any of our social, economic and governmental affairs.
3. Re-establish the time-tested and always effective principles of self-reliance, industry, productivity and thrift and overcome the weak-kneed reliance upon government support which is growing among our people at an alarming rate.
4. Urge full support of the government reorganization recommended by the Hoover Commission.
5. Free enterprise is the essence of the American way of life and any ideologies subordinating the individual to the will of the state are opposed.
6. Restoration of gold to its historic function in the monetary system of the country is believed to be an essential move.
7. A currency with the traditional base of gold and silver is favored.

8. Steps advocated to bring labor laws into being that would contribute a fair national code were: That collective bargaining be done on a plant or bargaining unit basis; make the prohibitions of the antitrust laws applicable to unions again; complete the program of purging the labor-management relationship of communistic influences; forbid strikes to compel employers to recognize and bargain with a union that has not complied with Section 9 of the National Labor Relations Act; amend Section 8(d) of the Labor-Management Relations Act so as to make it clear that there is no obligation to bargain collectively on any subject.

9. Make it a Federal criminal offense for either labor or management to engage in violence in connection with a labor dispute.

10. The Federal taxation system should be revised to stimulate the discovery and development of additional mineral reserves.

11. Not believing in a social welfare state, it is inevitable that the government be compelled to take over control of the entire national economy unless opposition be given to expanded "social security" and any form of compulsory health insurance or system of socialized medicine.

12. The American people cannot

afford excessive or unnecessary expenditures at home or abroad.

13. Tariff reductions jeopardize productive ability and opposition is voiced to inter-governmental commodity agreements and cartels that call for state control over industry.

14. As large stockpiles of metals and minerals are essential to preparedness, the building up of stockpiles is recommended.

15. An incentive to encourage prospecting, exploration and development of mines is recommended.

16. The American Mining Congress sees no reason to change the policy it has approved for many years with respect to the disposal of mineral-bearing lands in the United States.

17. The work of the U. S. Bureau of Mines and the U. S. Geological Survey is endorsed.

18. It is recommended that the Securities and Exchange Commission laws be amended so that only the fraud section or sections of the present Federal laws be applicable.

19. Valley authorities are destructive of our American theory of constitutional government.

20. Water pollution is a local problem and it is urged that Federal concern with the problem be limited.

21. Any legislation to compel restoration of the surface of lands



mined by stripping or dredging to be viewed with disapproval.

### Good Attendance

Attendance was excellent at all sessions. A marked departure from other meetings was observed in the turn out to technical and "white-collar" sessions. It was noticeable that at least twice as many were listening to the technical papers and discussions as to those dealing with political and economic subjects. Over 1,500 persons filled in registration forms for the three-day meeting.

After the entertainment of the annual banquet, a number of field trips were organized which took parties to Grand Coulee Dam, the new Reeves-MacDonald mill of the Pend Oreille Mines and Metals Company near Metaline Falls, Washington, the smelting plant of the Consolidated Mines and Smelter Company at Trail, British Columbia, the various metallurgical and metal working plants of the Spokane region and the mine and mill of the Chelan Division of the Howe Sound Company at Holden, Washington.

### Return to Gold

The American Mining Congress was told by Joseph Staggs Lawrence, vice president, Empire Trust Company, during a talk entitled "A Free Market for Gold," that "All gold producers except those in the United States were aided by Great Britain's devaluation of the pound and similar actions that followed in other nations." Mr. Lawrence said, furthermore, that "When Sir Stafford Cripps confessed inability of the British to hold their currency at the prior level it was like a Mohammedan disavowing Allah."

Prior to the devaluation of the pound sterling on September 18, Nicholas Havenga, Minister of Finance, Union of South Africa, charged that the delegates to the international money conference at Bretton Woods in 1944 had made certain definite commitments regarding gold that had not been fulfilled. Said Mr. Lawrence: "He charged that these delegates had virtually committed themselves at the time to a revaluation of gold by a universal change in currency parities, if and when the value of paper money reached a point of depreciation where high costs become intolerable to gold producers. This engagement, Mr. Havenga said, was not spelled out, because any attempt at that time to define the conditions under which such revaluation of gold would occur might prove embarrassing to the participating parties."

A compromise was proposed by Havenga whereby the Union of South Africa government would take one-half the annual production of the Union and sell it for the best price obtainable in the world's open markets.

### Silver's Future

Ross D. Leisk, general manager, Sunshine Mining Company, made an appraisal of the current silver situation in a paper entitled "The Future of Silver."

"The long-term outlook for silver appears to be favorable," reported Leisk, and the most significant indication of the potential market is that industrial consumption is outstripping production by a wide margin. "Coincident with a greatly expanded industrial consumption of the metal world production of silver has declined drastically from the all-time high of 274,000,000 ounces in 1937 to the present annual rate of about 160,000,000 ounces," he added. Stating that silver requirements of the United States Treasury for monetary purposes have been about 1,000,000,000 ounces since 1940, he pointed out that only about 300,000,000 ounces had been received by the Treasury from domestic producers in the same period.

The silver that has gone to foreign governments under lend-lease has little or no chance of being returned and Leisk stated that the Treasury's supply of unpledged silver has shrunk until the reserve is in the order of 160,000,000 ounces. Furthermore, he added, "... it is reported that the Treasury has re-entered the market in order to maintain its reserve at about this figure."

### Role of Strategic Metals

James P. Bradley, vice president, Bradley Mining Company, speaking on the plight of the producers of strategic metals said that his company, operating a recently completed antimony smelter at Stibnite, Idaho, would have been unable to construct the plant "if it were not for the gold content of the antimony ores at the Yellow Pine mine."

Included in the list of the strategic materials are about 50 metals and minerals, among the most important of which are tungsten, antimony, mercury, chromite, manganese and vanadium. "Vanadium is now a by-

product of uranium," said Bradley, "and its production is stimulated by the Atomic Energy Commission. The mining of chromium in this country has already ceased and the domestic production of manganese, equivalent to about 10 percent of consumption, is virtually all taken care of by one large copper mining company."

"Postwar consumption of antimony, mercury and tungsten is considerably higher than prewar, but domestic mine production is now at a low ebb due to rising costs and increasing foreign competition."

"The strategic metals have unique metallurgical qualities which make it difficult or impossible to substitute for their most important peace and wartime uses."

"Their strategic value is high, but the dollar volume of production and consumption is comparatively small. The total value of the 1949 domestic production of the three metals—antimony, mercury and tungsten—will probably be under \$5,000,000,000."

### Encouraging Copper Outlook

The editor of the *Daily Metal Reporter*, Dr. Joseph Zimmerman, told the congress that should industrial peace be assured, the outlook for copper was more encouraging than at any time during the present year. He added that he thought that devaluation of the British pound sterling would not affect the domestic copper market.

"Britain will no doubt try to make inroads into those foreign markets where Americans have been selling their metal products," explained Dr. Zimmerman. "The only advantage that Britain has for the time being is a lower wage rate, provided the British government succeeds in heading off another round of wage increases."

"We, in this country, however, have the advantage of mass production, modern machinery and the know-how, and we can make good use of these advantages, provided our labor does not price us out of the foreign markets by increasing our production costs."

Joe G. Uzelac, sales engineer, Denver Equipment Company; L. L. McLean, director, U. S. Grant Mining Company, and Walter H. Myers, general manager, U. S. Grant Mining Company.





## Industry, Labor Criticized

Management and labor both were criticized by James K. Richardson, manager, Utah Mining Association, when 1949 wage negotiations were reviewed. "A look at the picture from the sidelines is most disheartening," Richardson pointed out. "It discloses many tactical weaknesses, inexplicable positions, short-range strategy and evidence of little realistic, planned thinking through of the labor problem."

Labor, he indicated, showed indecision in "failure to develop honest, sincere and able leadership with an ability to correctly evaluate for their membership the hazards of the path they follow." Furthermore, he said that labor is being undermined by ideological trends. The "Four Freedoms," celebrated as the way to a new mode of existence, have implanted a negative philosophy. What we need today are "freedom to's"—freedom to grow, freedom to create, freedom to work, freedom to provide jobs, freedom to seek independence, freedom to be individuals." In conclusion, Richardson pointed out that "This great Pacific Northwest was not won by men and women who were free from things—they were free to do things."

## The Red Menace

Robert E. Vivian of the *American Metal Market*, that has conducted a campaign for two years, directed at exposing the alleged Red connections of the International Union of Mine, Mill and Smelter Workers, Congress of Industrial Organization, stated that this union still is being led by Communists regardless of the signatures on noncommunist affidavits required by the Taft-Hartley law.

"Communism in our labor unions today is but a part of the infinitely wider conspiracy directed against the free world. John Clark is president of the international union, Maurice Travis is its secretary-treasurer, and Reid Robinson is vice president. It is these three who actively run the

smelter union and play a major part in formation of its policy. . . .

"In October the smelter union held what it piously declared to be a 'democratic' election. In fact, however, it was an election stage-managed by the Communists and resulted in Mr. Clark's being president before the rank-and-file voters even went to the polls. . . .

"Robinson was president of the international union before the uproar over the Communist issue forced him to step down and hand the reins to Maurice Travis. He was vice chairman of the American mobilization during the Stalin-Hitler pact. He has been thrown out of Canada because the Canadian Government found that he was a member of an organization designed to force its overthrow."

## Stockpile Security

"We are stockpiling materials for the national security. If the stockpile should prove helpful to other national purposes, that is well enough. But the tail should not wag the dog," said Major General A. B. Quinton, acting director for industrial programs.

Two schools of thought exist regarding stockpiling, continued the speaker. "One is seeking to have us buy as much as possible in the United States to support our domestic mining industry, and the other to have us buy abroad to support American exports of manufactured products."

"It has been our firm policy, and one that we want to maintain, to conduct the stockpile for its primary purpose and not to deviate to accomplish side objectives," he added.

Stockpiling of 69 materials is progressing as fast as Congress appropriates the money to buy them and of this number, 51 are of mineral origin. Only eight are produced in the United States in some quantity and only 27 are produced here in minor quantities. Continuing, he said that the most basic resource needed to fight a war is man power. Citing the tin stockpile as an example, the General traced the course of the metal from mine to finished product, pointing out the ever necessary man power required to produce tin metal. "However," he added, "the amount of man power represented by our reserves of 69 materials in the stockpile is infinitesimal, compared with the additional man power that would be needed to carry out our industrial programs without their use."

"In the final analysis, we stockpile materials on the basis not of the man power required to produce them, but the man power that would be required if we did not have them. The lack of any one of the 69 materials being stockpiled would involve us in a tremendous and costly, time-consuming effort to overcome that lack. With certain of these items, the man power cost might well decide the issue in a future war."

"We consider it our duty under the act, and in the interest of the national

security, to stockpile principally those materials produced abroad."

## Incentives for Mines

Exploration and production incentives were the subject of a lively discussion during the congress. W. C. Page, assistant general manager of western operations, United States Smelting, Refining and Mining Company, struck the keynote when he said, "It is my sincere belief and conviction, which I know is shared by most of you, that major benefits to the nation and to the mining industry as represented by the prospector, leaser, and small, medium and large operators can best be obtained by a revision of the existing tax laws."

It was recommended specifically for tax purposes that: (1) Exploration and development costs should be allowed as operating expenses separate and apart from capital costs recoverable through depletion allowances; (2) depreciation allowances should be left to the discretion of the taxpayer and should control so long as he adheres to his choice with consistency; (3) depletion allowances should be increased; (4) a carry-back period of net operating losses for not less than two years and a carry-forward period of five years should be permitted; and (5) a tax-free period should be allowed for new mining ventures.

Speaking on the same subject, A. E. Petermann, vice president and general counsel, Calumet and Hecla Consolidated Copper Company, said that "Traditional economic thinking starts with the relationship of price, supply and demand in a free market," adding that certain factors present have a retarding effect and that it is important to understand them. These factors are: (1) A major price change may affect only a small part of the industry, as costs vary widely from mine to mine; (2) that segment of the industry which is affected by a price decrease does not ordinarily reduce production as soon as prices drop; and (3) a substantial part of the supply is almost indifferent to price changes.

Dr. James Boyd, director, U. S. Bureau of Mines, stated the case of the Administration regarding exploration and production incentives, and said: "... the Administration is not interested in entering the mining industry, and has no desire to control mineral production."

## Taxes

The position of the Canadian mining and taxes was reviewed by V. C. Wansbrough, executive director, Canadian Metal Mining Association, and Ernest N. Patty, president and general manager, Yukon Gold Placers, Ltd., and Alluvial Golds, Inc. On the whole, the Canadian system of mine taxation is much more equitable than the system employed in the United States. The wartime Excess Profits Tax has been repealed

Two more General Electric Company men caught in a jovial mood were S. E. Berry, New York City, and R. D. Ketter, Schenectady.



and under the Income Tax Act of 1949 taxes for companies with profits of less than \$77,000 yearly have been reduced and for companies with income in excess of that figure taxes have gone up. Realistic legislation aids the gold miner, no tax is levied on capital gains and prospecting is fostered. The tendency in taxation policy has been one of encouragement for the metal mining industry as a whole.

Mord Lewis, Anaconda Copper Mining Company, and Paul B. Jessup, vice president, Day Mines, Inc., read papers on the American system of mine taxation. Lewis' paper indicated that among necessary reforms were: Realistic treatment of exploration and development expenditures in behalf of new properties and producing mines; extension of net loss carryover period to at least five years; liberalization of current allowances for depletion; accelerated amortization; and some form of relief from income taxes for at least five years. Jessup briefed his recommendations to relieve mining as follows: Treatment of exploration and development costs; depletion allowances; depreciation and amortization allowances; loss carryovers and carrybacks; outright tax reduction or tax elimination for a period of time (Canadian system).

#### Small Mine Labor Relations

Citing the problems of the small operator to hire and retain good employees when operating near to larger mines, J. C. Kieffer, manager, Spokane-Idaho Mining Company, broke the problem into four categories: Wages, working condition, job security, and living conditions. Kieffer concludes that the foremen on the job are the most important item for maintaining good relations because good men wish to stay with qualified foremen.

#### A Shooting War

The session devoted to "Proposed Revision of the Mining Laws" was one of the best of the politico-economic gatherings. Marion Clawson, director, Bureau of Land Management, was spokesman for the Administration. Charles F. Willis, state secretary, Arizona Small Mine Operators and Association and chairman, Public Lands Committee, National Minerals Advisory Council, stated the case of the prospectors and miners when he said "The mining industry was unanimous against the proposed changes in the laws on locating and patenting mining claims." Donald A. Callahan, vice-president, American Mining Congress, remarked humorously during the session that the range wars between the sheep and cattle men in the late 1800's had resulted in shooting. Furthermore, he added, "We miners have had both surface and mineral rights for some 80 years. We



H. C. Glaze, manager, General Electric Company, Spokane; Charles Tilford, manager, Bitco, Incorporated, Wallace; J. D. Wright, manager, Industrial Engineering Division, Schenectady.

fear separation of the surface rights might bring conflict with timber, grazing or recreational interests."

This phase of the problem was to be continued in talks scheduled for mid-October in Spokane.

## JOHNS-MANVILLE'S GIANT ONTARIO ASBESTOS MINE WILL START PRODUCTION NEXT MAY

The way is clear for an immediate start on development of Northern Ontario asbestos deposits. Production is expected to commence near Matheson, Ontario, about 40 miles south of Timmins, by next May 1.

Mines Minister Gemmell of Ontario announced recently that negotiations between the Canadian Johns-Manville Company and the Ontario Mines Department are complete, and the company can go ahead at once with the development. He made the announcement after conferring with G. K. Foster, company vice-president, and E. J. Shaffner, consulting engineer.

The company set aside \$3,000,000 for the initial work. Mr. Gemmell said. Construction will start soon on a townsite near Matheson for houses to accommodate the families of 200 workers. A warehouse will be built at Matheson.

The Ontario Highways Department will build roads between the townsite and the mine; buses will transport workers to and from the job.

A mill with a capacity of 100 tons of ore a day will be built in Munro township, where a proved orebody has been found. Options have been taken on property in two adjoining townships and exploratory drilling is under way.

So far, no estimate is available as to the quantity of asbestos in the Matheson area deposits. Mining men say the Munro township deposits will yield about twice the ore value of that produced at Asbestos, Quebec, where Johns-Manville also has a plant.

The mine will be 10½ miles from Matheson, eastward in the direction

of the Quebec boundary, on what is known as Lightning Rod Road. Only a few key workers will be brought from the company's other plants. Most of the men needed will be hired in the district.

Mr. Gemmell described the entry of the company into the Timmins district as "a great boon to that area, because it will serve to diversify the mining industry there." The asbestos project will be just southeast of the famous Porcupine goldfields.

A senior officer of the Johns-Manville Corporation in New York said the company hopes the new asbestos development in Northern Ontario may some day be comparable to the largest asbestos mine in the world in Quebec.

John P. Symes, a senior vice-president of the corporation, said "much more" than \$1,000,000 already has been invested in the Ontario property. It is expected the mine will eventually be a multi-million-dollar project and will employ between 300 to 500 persons within two years.

Symes said the corporation discovered the asbestos deposit near Matheson last winter. Corporation officials viewed the new development as potentially a major factor in western hemisphere defense. They said that asbestos is necessary in the manufacture of jet aircraft and other war materials.

They also expressed belief the new mine might provide a stabilizing factor in Canada's economy since the U. S. has bought 95 per cent of Canada's asbestos and presumably would continue to buy all surplus asbestos, thus bolstering the Dominion's dollar position.



Left: The O'Brien barite mill at Rincon, New Mexico. Right: The mine crushing-screening unit of the O'Brien barite property east of Hatch, New Mexico.

## new mexico BEGINS TO PRODUCE BARITE

*This small open pit operation, one of the newest in the state, will produce high grade, sized concentrate for many industries*

A new industry was born in New Mexico in April, 1949, when J. W. O'Brien began commercial production of a high-grade drilling mud barite product from his mill at Rincon, Dona Ana County, New Mexico, after a slow but methodical and well-planned exploration, development and construction program.

O'Brien became interested in New Mexico barite production in 1941 when he obtained possessory rights to the Palm Park group of mining claims comprised of the Palm Park No. 1, No. 2, No. 3, and the Hatch Extension No. 1 and No. 2 claims approximately eight miles east of Hatch, New Mexico. Mr. and Mrs. O'Brien have personally overseen every detail of the development of this enterprise. They are from Houston, Texas, where O'Brien has had long experience in the sale and use of oil well drilling muds and allied materials.

### Interesting Geological Setting

The deposit can be described as the barite, fluorspar and quartz filling of a brecciated rhyolite sill that was intruded along a limestone-shale bedding contact, dipping and striking in conformity with those beds. The extensive deposit is extremely high in barite content with the fluorspar and quartz as minor impurity constituents that are not a serious problem in the mining or concentrating operations. A new road was constructed for seven and a half miles east to the deposit from the paved Hatch-Rincon highway in late March, 1948. The mill is at Rincon, on the Santa Fe railroad,

an additional two and a half miles from the deposit.

After a careful study of many possible mining and concentrating methods that might be suited to economical extraction and beneficiation of the ore, O'Brien has chosen an open-cut mining procedure with crushing and screening plant at the minesite, making a minus  $\frac{1}{4}$ " mill-head product for truck transportation to the mill at Rincon.

### Bulldozer Mining

The mine crushing and screening plant, located just below the better portions of the hillside deposit, is a compact unit powered by a 25-h.p. Fairbanks Morse diesel engine connected by line-belt drive to the crushing, conveying and screening units. The mine-run ore is brought by

bulldozer to a grizzly with 4" spaces over a small feed bin. Some concentration is done on the grizzly, where large boulders of low-grade gangue are easily discarded to the rock dump. The material through the grizzly is fed to a Blake primary jaw crusher (9x15"), where it is reduced to minus  $\frac{3}{4}$ " and fed to a set of 14 x 30" rolls for reduction to minus  $\frac{1}{4}$ ". A bucket elevator carries the material to a trommel screen with  $\frac{1}{4}$ " screen openings and the oversize (approximately 5 percent of the initial feed) is returned to the roll feed. The minus  $\frac{1}{4}$ " material from the screen is stored in a bin for truck loading and the 10-mile haul to Rincon.

### The Rincon Mill

The mill at Rincon is a screening and jigging plant that incorporates some unique features worked out for this particular application. Power is supplied by a 4-cylinder automobile motor connected to all units by a line-drive system. Preparations are made for an additional power unit. The sized ore from the mine is dumped into a concrete storage bin of 50 tons capacity (unlimited stockpiling facilities adjacent) and picked up by a bucket elevator feeding a double-decked Niagara vibrating screen. The top deck with  $\frac{1}{4}$ " opening screen serves to relieve the load from the 30 mesh bottom deck screen cloth by carrying the plus  $\frac{1}{4}$ " material. The minus 30 mesh material goes to a jig-feed bin and the plus material from both decks of the screen go to a double-section trommel where the

Mr. and Mrs. J. W. O'Brien standing before some of their first finished barite product piled beside the Santa Fe Railroad tracks at the mill in Rincon.



following three sized products are made: Plus 30 mesh minus 16 mesh, plus 16 mesh minus 8 mesh, plus 8 mesh minus 4 mesh. The four closely sized screen products are kept separated in a partitioned bin and are fed to separate bucket elevators feeding four fixed-sieve pulsator type jigs. Water is supplied to the jig feed on entry to the jig. For conservation purposes the water is circulated through a thickener from which it is returned as clear overflow to the jig circuits. The sludge product from the thickener is pumped to a nearby waste sludge pond.

#### Jigging Plant Procedure

The two jigs receiving the two coarser products are equipped with 16 mesh sieves and carry a bed of the feed ore about 4" thick. The jig handling the plus 30 minus 16 mesh feed is bedded with that material on a 30 mesh sieve. Tailings and concentrate products are removed from the tops of the jigs handling the three coarser sizes, but all the concentrate is taken from the bottom of the hutch of the minus 30 mesh jig. This fine-product jig is equipped with a 16-mesh sieve and carries a false bedding of the minus 4 mesh plus 8 mesh material. This concentrate is tapped into a concrete sump and pumped into the intake of an inclined drag conveyor where all concentrate products are united and dewatered as they are conveyed into a small load-out bin ready for drying and/or rail shipment. The drag conveyor is in two compartments and the tailings are collected from the four jigs in the compartment adjacent to the concentrate compartment, and dewatered as conveyed into a storage bin. This tailings material may be marketable locally as a building or surfacing aggregate.

#### Market Specifications

Mr. O'Brien will sell his end product to other interests who will complete grinding, bagging and marketing. He is operating at this time with a seven-man crew at the mine and five-man crew at the mill on a production rate of approximately 1,000 tons per month of finished barite product. When all the customary "bugs" are ironed out of the operations, output may increase to about 2,500 tons per month with a crew approximately double the present number. Marketing specifications call for a product that will have a minimum specific gravity of 4.25. Maximum commercial specific gravity for such material is generally agreed to be 4.40 and a test of the first 50 tons of product proved it to run 4.30. He believes it will be possible with the small amount of sorting on the grizzly at the mine to maintain a mill feed of near 70 percent barite ore.

Besides its valuable and widespread application as a heavy-weight constituent of oil-field drilling mud, barite is used in considerable quan-

tity in the glass and ceramics industries, in paint pigments and in many chemicals.

#### Arizona Quicksilver Mine Is Reactivated

Acquisition of the National Quicksilver group of lode mining claims by Charles L. Dufur of Burbank, California, and associates, has been announced by R. Earl Evans of Phoenix. A new Arizona corporation, capitalized at \$5,000,000, and known as Sunflower Mines, Inc., is being formed to handle the development of the property. The group consists of 50 lode mining claims in the Sunflower Mining District of Maricopa County, Arizona, from which shipments of quicksilver were made by previous owners. Upwards of \$250,000 has been expended on the property to date, and a recent sampling of a 70' showing is said to have shown 3.5 pounds of quicksilver to the ton. The new owners state that they plan for a large development, including the erection of a reduction plant on a unit basis. Exploration of the silver, lead and manganese showings is planned after the development of the cinnabar deposit is well under way.

The company is to be headed by the following officers: Charles L. Dufur of Burbank, California, chairman of the board; R. Earl Evans, Phoenix rancher, president; R. L. Nunn, Waco, Texas, executive vice president; J. Weldon Nunn and Virgil Hughes, Waco, Texas; and J. W. Anderson, Burbank, California, vice presidents; H. G. Sens, Pasadena, California, secretary; and R. A. Bradley, Huntington Park, California, treasurer. The board of directors will consist of the officers together with Philip McAndrews, who will act as general

manager; E. J. Jacobi, CAA official, Charles Rubardt and Wallis Clark, all of Los Angeles.

#### New Mexico Fluorspar Has a Bright Future

The Nakaye group of fluorspar mines, consisting of five claims in the Pittsburg Mining District and owned by Andy C. Hall, Deming, New Mexico, has been opened recently, with Jack Wallace and A. W. Butler in charge. Four cars have been shipped since June 4, averaging 25.5 and better. About 60 tons of mill ore was sold to the mill in Deming at an average of 62 CAF.

This fluorspar deposit is believed to be one of the largest and best to be discovered in the Southwest, and is in blanket formation. A face 56' wide has been cut, and a 250' tunnel driven from which the ore has been received. Fourteen surface openings, showing values in spar, can be worked profitably by as many as 100 men with their equipment. To date, nine strata of spar have been cut through.

This mine is four miles from a paved highway and power line and 15 miles from the nearest railroad. Water is in 15', in adequate quantity to operate a mill and jigging plant.

This ore is being mined, loaded and shipped direct without assaying, and top prices for mine run ore is being paid by the purchasers, and standing orders beyond the present capacity to fill have been received.

From past history these workings indicate good possibilities for a supply for years to come.

Core drilling has not been done, due to the amount of spar visible and already blocked out in tunnels, shafts and exploration holes.

High grade barite face opened adjacent to and slightly above the mine crushing and screening unit.





## CARIBOU, ON THE IRON DIKE

High on a windswept hill, 9,800 feet above sea level, is the snow-crushed, battered remains of Caribou, a once booming silver camp in the Rockies. The camp did not materialize until 1870, yet ten years earlier Sam Conger, while elk hunting, "sat down on a rock where Caribou was to be." He noticed strange mineral outcroppings around him, but they meant little to him. In 1869 he saw some rock on a freight car at Cheyenne and picked up a chunk of it out of curiosity.

"Drop that," yelled a trainman. "That's silver ore from the Comstock lode worth a dollar a pound."

"If that's silver I know where there's a whole mountain of it," replied Conger, and hurried back to Colorado. Although it was late in the fall and winter setting in, he again climbed to the hilltop where he had tracked the elk and searched for the outcroppings of rock that so closely resembled those he had just seen.

About the same time William Martin and George Lytle, who were seeking ore for flux for the Black Hawk smelter, reached the same place, and Martin, after digging an hour or two, struck a solid ledge of ore rich in silver. Lytle also struck a vein of silver, 300 feet away, and called his find the Poorman. He named Martin's discovery the Caribou. Three friends, Hugh McCammon, John H. Pickel and Sam Mishler, came by hauling wood, and Martin showed them his claim. Some say it was Martin, and others that it was Conger, who first found float rock and uncovered the vein. At any rate all six men became partners, built a shelter for themselves and wintered near their prospects. They even had

to cut a road through the timber so as to get in supplies and so as to be able to pack out the ore on their backs. The Caribou vein varied from 6-36 inches in width and from 3-12 feet in depth. Ore averaged 60-70 oz. per ton, with high grade running from 200-20,000 oz.

By the summer of 1870 swarms of prospectors clambered up to the hilltop, living in brush shelters or pitching tents beside their claims, and with their arrival the camp of Caribou was born. The town was laid out and by the spring of 1871 over 60 cabins and many tents housed a population of 400. After a town plat was made and four streets laid out, false-fronted business houses lined Idaho street "for 1,200 feet."

Five saloons catered to the needs of the miners. Pete Werley's was one of the most popular places, but the Brewery (later called the Gumboot Saloon) had its following. Sears and Werley also operated a billiard and pool hall "with three good tables"; the Shoo-Fly Dance Hall vibrated with the stamp of hob-nailed boots and the painted ladies of the camp lived discreetly on lower Idaho street.

While the Caribou was the greatest mine which the camp produced, many other rich strikes were uncovered during the summer of 1870—the Poorman, the Trojan, the Boulder County, Potosi, Sovereign People, Spencer, No - Name, Seven - Thirty and Sherman, all of which shipped ore. The Idaho produced \$6,000 in one month from a shaft not more than 20 feet deep. During this first boom "a man was lucky to get a good tree under which to spread his bed."

Late in 1870 Conger sold his interest in the Caribou mine and became

owner of the Poorman instead. This he also sold to Neil D. McKenzie, who made a fortune from it.

A. D. Breed of Cincinnati, who had built a reduction mill at Nederland, four miles away, became interested in the Caribou mine and asked to see the workings. He was not allowed to inspect the mine, but was shown some samples of ore and finally agreed to buy a half interest in it for, some say, \$50,000, and others, \$125,000. By the spring of 1873 the Caribou was one of the great silver mines of the state—its output in a single year reaching \$1,000,000. That same year Breed sold the mine to a company from Holland for \$3,000,000, and it is said that before the new company took possession he stripped the mine of all its best pockets of ore. The Dutch Company was therefore left with an unsatisfactory property and in 1876 the mine was sold at a sheriff's sale to the Hon. Jerome B. Chaffee for \$70,100. The No-Name, Spencer and other adjoining claims were finally consolidated with the Caribou into one strong stock company.

The original claim was developed by seven shafts and by 1875 seventeen miles of underground workings had been drilled into the mountain. After the silver crash of 1893 the mine lay idle, much of it under water. Then in 1898, during the gold boom at nearby Eldora, prospectors began to investigate the old silver mines in the region and found that the seemingly barren quartz was gold-bearing. With this discovery the town filled up again—houses long empty were occupied, and saloons ran full blast. In 1904 the biggest discovery of silver ore since 1871 was made in the Caribou and appreciable amounts of gold were also found. By 1915 the mine had produced \$22,000,000 in silver and gold.

In May, 1945, G. C. Ridland, geologist for the Canadian Radium & Uranium Corporation, passed a geiger counter over the dump of the Caribou mine on which Conger had thrown away chunks of black rock, and found traces of uranium present. Ridland had been searching for signs of pitchblende all over the mining areas of Boulder and Clear Creek counties and had even tried to get to Caribou earlier in the season, but the heavy snows prevented his reaching the camp. In May he tried once again and managed to get through the big drift on the road down near where

Continued on Page 63

The cemetery at Caribou. The present-day miners are blasting pitchblende from the lowest workings of the Consolidated Caribou Silver Mines, Incorporated.





## Proof THAT DENVER TESTING PAYS CONTINUING DIVIDENDS

Cost of crushing was reduced when screening tests showed Denver-Dillon Vibrating Screen would effectively screen out 50% of crusher feed which was already sufficiently fine.

Different reagent combination—and stage addition of reagents throughout flotation circuit not only reduced reagent consumption and cost, but also improved net recovery.

Tests proved how Denver Selective Mineral Jig could recover another mineral from complex ore profitably.

Cost of grinding was reduced when tests showed that by floating a coarser size particle and regrinding the middling particles in Denver Steel Head Ball Mill, recovery was increased and tailing losses due to slimes were lowered substantially.

When mineral characteristics of mine-run ore changed, Denver Laboratory Tests were used to determine most efficient flow-sheet.



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## Rosiclare Lead and Fluorspar Mining Company Reports

# \$20,000 SAVED IN ONE YEAR



## HOW THIS OPERATOR PROVED TESTING PAYS!

### The Problem

The problem confronting the Rosiclare Lead and Fluorspar Mining Company of Rosiclare, Illinois, was how to economically recover galena and lead carbonate from ore fractions too fine for treatment in the heavy media plant.

### Solution

Testing proved lead could be recovered by Denver Selective Mineral Jigs. Two Denver Mineral Jigs (sizes 12"x18" Duplex and 16"x24" Duplex) were recommended and installed.

### Result

Cost of entire installation including labor, materials and accessory equipment such as hydraulic classifiers, pumps, steel flooring, piping and all dewatering devices was returned by over 400% in only 11 months' operation.

### Rosiclare Lead Reports:

"—With the introduction of Denver Jigs we killed two birds with one stone—(1) we removed the lead prior to recovery of fine sized gravity spar concentrate thus eliminating lead as an undesirable impurity and (2) we recover the lead in a marketable form at low cost."



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Our Test Engineers are practical research men with years of testing experience. They are constantly in touch with leading mines, mills, universities, research bureaus, reagent manufacturers and designers of other mineral recovery equipment in order to make available to our friends the world's most economical and efficient methods of mineral recovery.

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As soon as we receive information about your ore and the tests required, our Test Engineers will furnish you a quotation based on the actual cost-to-us for making your tests. Then, if you desire, a sample of ore is submitted and your ore test is scheduled.

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Company \_\_\_\_\_

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**Z-3 POTASSIUM ETHYL**

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**PIONEER PRODUCERS OF XANTHATES FOR METALLURGICAL USE**

# GRAB SAMPLES—From the Mail

## Facts, Figures, Verifications

Dear Sir:

Everybody over here, occupying a key position, receives **WORLD MINING** and tin mining has received adequate coverage in the magazine by prominent men. However, facts and figures are not always correctly shown. For instance:

In your May, 1949, number appears an article on tin which hits upon the situation pretty well. Everybody acquainted with tin mining agrees with the general views of the author, but the tin deposits at Banka—100 percent government owned—are operated under the name Banka Tinwinning (B.T.W.). Those at Billiton—62.5 percent government owned—are under the name Gemeenschappelijke Mijnbouw Maatschappij Billiton (G.M.B.).

Only four postwar dredges are operated at Banka, not eight.

Before the war only one lode mine was operated at Billiton, of minor importance as compared to some 60 open cast mines. About 40 are producing again, but "fabulously rich deposits" belong to the past. The island of Banka has been producing tin for over two centuries! Fairly rich ground is devalued by the fact that production costs are 5 to 6 times prewar level and prices did not rise accordingly.

Ir. A. Gouka  
B.T.W.—Soengailiat  
Banka, Indonesia

In order to keep the news as timely as possible, **WORLD MINING** does not resort to verification of foreign, last minute items sent in by correspondents as the long exchange of letters necessarily would reduce newsworthy information to the status of history.—Ed.

## A Welcome at Home

Dear Sir:

Returning home from a three years' stay in Indonesia, in December 1948, I was welcomed by a bunch of copies of **WORLD MINING**.

Having been deprived of any recent literature about developments in the mining field during the war years in Holland, and the hectic post-war years of reconstruction in Indonesia, I appreciated **WORLD MINING** double.

Ir. J. J. de Witte, m.i.  
Falkenaweg 85  
Heerenveen, Holland

## Solving Problems

Dear Sir:

We are happy to say that all copies of **WORLD MINING** are being received regularly.

It really helps us a lot in our mining problems and we find it interesting in all respects. Please keep on sending us a copy of every coming issue to the same address so as to always maintain handy information.

P. A. Anorga, manager  
Empresa Minera  
Huamachuco  
Lima, Peru

## A Year of WORLD MINING

Dear Sir:

Thank you for sending me **WORLD MINING** during the past year. I highly

esteem your periodical for its detailed information and for the outline of proceedings in the mining world.

Dr. Ir. J. Visman  
Sporbrugstr 6  
p. Brunssum  
Netherlands

## New Field for Heavy Media

Dear Sir:

We receive with pleasure and much interest your magazine **WORLD MINING** which keeps us regularly informed about the improvements and modifications that one observes in the mining installations in the entire world.

Your review recently has attracted our attention to the possibilities of operating with heavy media separation. We happened to have some assays on one of our lead properties in Algeria and, the results being satisfactory, we have the intention of altering the flowsheet of our mill by installing a plant for preconcentrating with heavy media.

R. Chililot  
Compagnie des Mines  
d'Ouasta & de Mésoulou  
Province of Constantine  
Algeria

## More on Oxide Flotation

Dear Sir:

**MINING WORLD** has recently published a good many notes on the beneficiation of the oxide lead-zinc-silver ores. These have been most interesting and all contribute to a pool of information which will assist others in their efforts to "crack" these ores, i.e., to arrive at an economical method of concentrating the mineral values.

I, too, have spent some time doing private research work on samples received from the Western states. My experience with the flotation of oxidized lead and zinc minerals has been as disappointing as that of anyone else. A number of combinations of fatty acids with other reagents will give concentrates containing 20% lead with a 40% recovery. One set-up which is an improvement over others is the use of a neutral oil or kerosene with Betramine R. The latter is an anionic reagent (frother), made by Alframine Corporation, Los Angeles, and is described as an alkylol-amidosulphate of which the aliphatic chain is saturated and varies from 10 to 18 carbon atoms. In a test using 60 pounds of neutral oil and 0.10 pounds Betramine R per ton, I produced a lead concentrate containing 24.98% Pb, 8.75% Zn and 25.88 oz. Ag. The lead recovery was 52.4%. Most of the neutral oil was recovered by pressing a small primary conc.

The head sample for the above and other tests analysed as follows: % Pb 11.71, % Zn 9.65, Oz/T Ag 12.04, %  $R_2O_3$  3.2, % Insol 46.0, %  $CO_2$  12.75.

By sulfidizing a sample with H<sub>2</sub>S and selective flotation of lead and then zinc, 73.6% of the lead was recovered into a concentrate analysing 37.8% Pb and 7.72% Zn; 47.2% of the zinc was recovered into a concentrate containing 12.4% Pb and 21.1% zinc.

As a matter of interest, the most effective (and expensive) method discovered of recovering the values from the ore was that of leaching the zinc with sulfuric acid, washing the tailings and floating the lead sulfate and silver therefrom using sodium silicate and naphthenic acid in a pulp of pH 6.2. An excess of acid, 1,492 lb./t 100% acid, was used; 728 lb. of acid were consumed by the ore, of which all but 353 lb. was theoretically recoverable. By this method 96.7% of the zinc was extracted by leaching, 93.8% of the lead and 84.3% of the silver were recovered by flotation. The flotation concentrate analysed 36.1% Pb and 36.30 oz. Ag.

It is notable that all of the experiences of those companies interested in the treatment of carbonate ores, whether it be the recovery of magnesium or copper metal, the production of refractory MgO or the recovery of soda ash from lake brines, point to the fact that the processes are expensive and recoveries are not high. The lead-zinc carbonates may be even more difficult due to the presence of basic carbonates which may well account for the difficulties in floating one mineral while depressing the other. Little or nothing has been published about the mineralogical distribution of the values through the gangue material. Possibly very fine grinding is required to release the zinc minerals from the gangue.

Frank A. Newquist  
Research Engineer  
Basic Refractories, Inc.  
253 Hedges Street  
Tiffin, Ohio

## Interesting and Instructive

Dear Sir:

I am very glad to acknowledge receipt of a few copies of **WORLD MINING** and I thank you for the courtesy shown to me.

I wish to congratulate you for the interesting and instructive presentation and review of international mining news which will no doubt greatly help mining engineers in India.

Anil Kumar Chakravarti,  
mining engineer  
C. P. Manganese Ore  
Company, Ltd.  
Bara-Jamda  
Singbhum, India

## More on Humphrey's Spirals

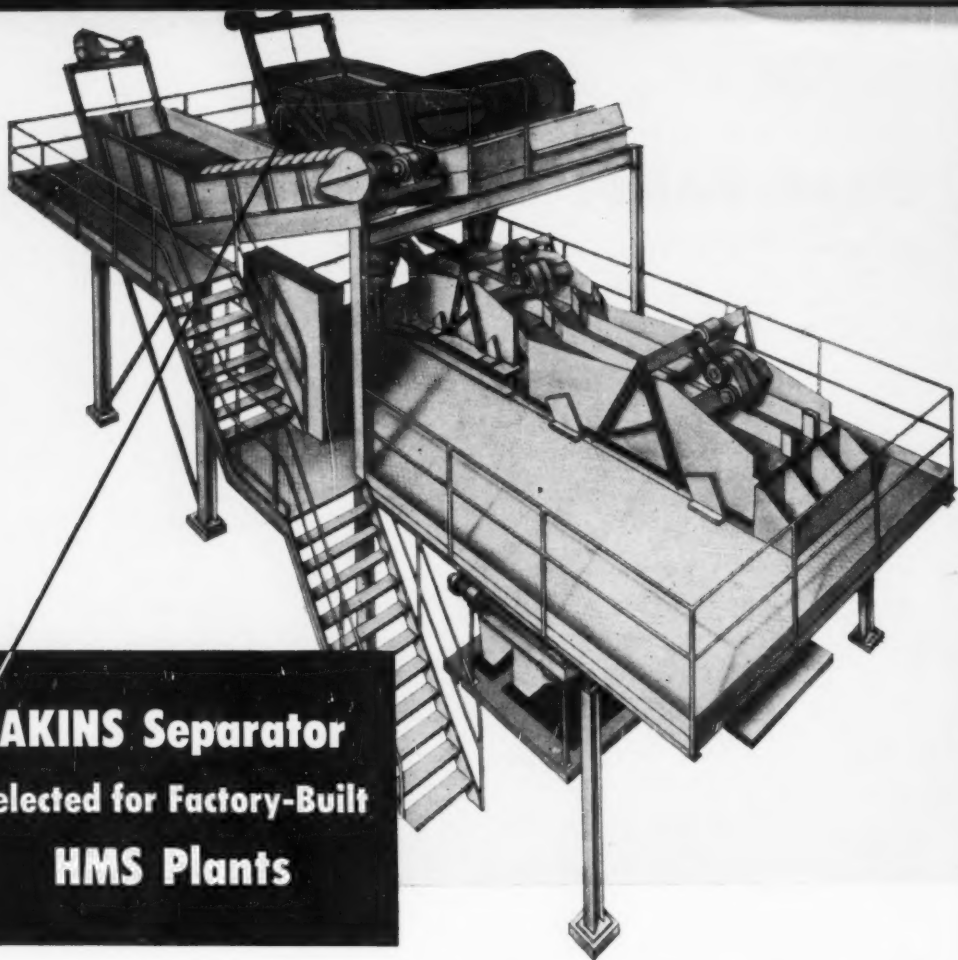
Dear Sir:

I have always appreciated with interest your sending your magazine **WORLD MINING** to me regularly. Thank you very much.

Such a magazine has the advantage for me of following the innovations observed in mining installations throughout the world and their uses in connection with the treatment of minerals.

It is thus that your magazine recently drew my attention to the Humphrey spirals, following which I corresponded with the Humphrey Investment Company which is in process of testing a sample of lead ore that I sent to them.

R. Cardot,  
Société Française d'Etudes et d'Entreprises  
6 Rue de la Rochefoucauld  
Paris, France



## **AKINS Separator selected for Factory-Built HMS Plants**

AKINS Separators together with all auxiliary equipment for Heavy Media Separation are now available as complete prefabricated units. These complete Heavy Media plants are built by Southwestern Engineering Company from designs prepared jointly by the Engineering Staffs of SWECO and Colorado Iron Works.

SWECO Plants are the only HMS units capable of producing separate float, middling and sink products—the Akins Separator being the key to this feature. Each plant is completely factory-built and tested before shipment to assure accurate field erection and trouble-free operation. Factory-built plants meet any capacity requirement up to 100 tons per hour. SWECO's Engineering Department also has the necessary data for economically designing custom-built plants when larger capacities are required.

In a SWECO HMS Plant, you get these advantages: Lower capital investment through use of the AKINS Separator. 40% Less installed horsepower

because of AKINS equipment. Lower operating cost, higher recovery and a better grade of concentrate than is possible with any conventional existing plant. Field erection supervision service in continental U. S.

The complete story of these plants is told in SWECO Bulletin 902. Write for your free copy to Southwestern Engineering Company, 4800 Santa Fe Avenue, Los Angeles 11, Calif.


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Crammed with outstanding features of safe and efficient operation! Air Bar Feed converts hand-feed Drifters—yes, and Sinkers too!—to fast efficient POWER FEED! Six speeds forward and reverse!

Fool proof Pneumatic Column simplifies drifting set-up. Built to stand up longer under severe use than anything in its class today!

Illustrated circular No. JE1132 tells complete story of these and other new cost-saving Thor air operated mining tools. Send for it today!

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# WORLD MINING

The International Department of MINING WORLD

SAN FRANCISCO, CALIFORNIA

NOVEMBER, 1949

## INTERNATIONAL PANORAMA

**DOMINICAN REPUBLIC**—Issued in accordance with the recommendations of the International Monetary Fund, the Dominican Republic has established strict controls on the export of gold or auriferous minerals.

**OTTAWA**—Devaluation of the Canadian dollar in terms of U. S. currency has placed a ten percent bonus on Canadian gold production, but spokesmen for the industry doubt that it will stimulate production to any pronounced extent.

**LONDON**—Widespread uncertainty about the future of the nonferrous metals followed the drastic devaluation of the pound sterling by Britain on September 18. U. S. Treasury Secretary Snyder reiterated that the price of gold in the U. S. would remain at \$35.

**PARIS**—After the break in the price of the pound sterling, the Bank of France intervened in a large way to restrain the upward movement of the price of gold by selling an estimated 50,000 louis which forced the price downward.

**SPAIN**—New sources of uranium were reported from the Pyrenees by Spanish mining engineers, thus adding to the deposits that already made Spain the world's fourth largest owner of known resources of radioactive ore.

**CHILE**—The Caja de Credito Minero (Miners' Credit Bank) in Santiago revealed that the U. S. has bid for Chile's entire output of manganese for the next five years.

**LONDON**—The British Ministry of Supply cut the price of tin 8 cents bringing the figure to 95 cents during the last days of September.

**NEW YORK**—The lead market declined for the second time within a week when the price fell to 14½ cents a pound in early October.

**LONDON**—British users of base metals will not benefit from the devaluation of the pound sterling, according to the Ministry of Supply which announced that sterling prices of metals will remain in line with the world market level based on American dollar prices.

**CAIRO**—The Egyptian Ministry of Commerce and Industry is considering legislation concerning the letting of permits for mineral and oil prospecting, according to Dr. Mahmud Abu Zeid, director general, Mines and Quarries Department.

**CHILE**—Chilean exporters of nitrates will get about 120 pesos per pound sterling instead of 173 as they did before devaluation. Furthermore, as some of the chief takers of nitrates are Great Britain, Egypt and other countries of the British commonwealth, the nitrate industry will have to raise the price for the sterling area.

**MEXICO**—The Mexican national mint is working at full capacity making Mexican gold and silver coins and from 200,000 to 300,000 Chinese dollars daily, finance minister secretary Lic. Ramon Beteta announced recently. Late dispatches say that in ten days the mint struck off 200,000 gold coins of 50 peso value and 100,000,000 silver pesos.

**JOHANNESBURG**—First reaction to the devaluation of the South African pound, which was simultaneous with and to the same extent as the devaluation of sterling, has been a tremendous upswing in confidence in the mining industry. Everywhere the step has been welcomed as giving the long-sought-for relief for which the industry had been hoping.

**BRAZIL**—General Silvio Raulino de Oliveira, director, Cia Siderurgica Nacional, recently returned from the United States, said that the U. S. is prepared to underwrite the advanced stage of development of the company's steel plant at Volta Redonda for \$17,000,000.

**ROMANIA**—Advice received from Bucharest indicates that under the One Year Plan initiated the first of the current year Romania plans to raise pig iron output by 35 percent, rolled products by 30 percent and open hearth products by 16 percent over 1948 by reconstructing 12 existing Siemens-Martin furnaces and three blast furnaces.

**NEW YORK**—As this issue goes to press the price of zinc stands at 9¼ cents, down ¼ cents from the previous quotation, the result of the slackening in consumption in the steel industry, now strike bound.

**SOUTH AFRICA**—To supply ammonia nitrate to South African consumers, an ammonia plant will be built by the African Explosives and Chemical Industries, Ltd., at a cost of £2,000,000 at Modderfontein.

**CHILE**—A subsidy for the small mining industry is undergoing study by the Chilean government as the industry has been very hard hit by the recent fall in metal prices. Should a subsidy be voted, it will be paid through the Miners Credit Bank. About 3,000 miners depend on the small mining industry for a living.

**LIBERIA**—Plans are being made for shipping over 1,000,000 tons of iron ore from Liberia to the Republic Steel Corporation in the United States. Plants at Cleveland, Chicago, Youngstown and Buffalo will receive the ore.

**TOKYO**—Late word from Japan indicates that a sharp cutback in Japanese copper production will result unless relief is forthcoming due to the announced withdrawal of the government subsidy, supposed to terminate on October 1. The subsidy amounted to about \$220 or 80,000 yen per ton.

**JOHANNESBURG**—Headquarters have been set up in Johannesburg by the United States Bureau of Federal Supply to step up supplies of minerals for U. S. stockpiles. Chiefly sought will be chrysotile asbestos, beryl, chemical grade chromite, cobalt, kyanite, mica and columbite from Rhodesia.

### Indian Monazite Sands Will Be Processed

A fifteen-year agreement has been signed by the Indian Government and two French firms, the Soc. de Produits Chimiques des Terres Rares and the Banque Marocaine de Credit, to process the monazite sands of Travancore. As processing the sands has some bearing on national development, the Indians wish to keep the business in their hands. The French will train Indian scientists in the processes, and Indian personnel will be employed at the plant.

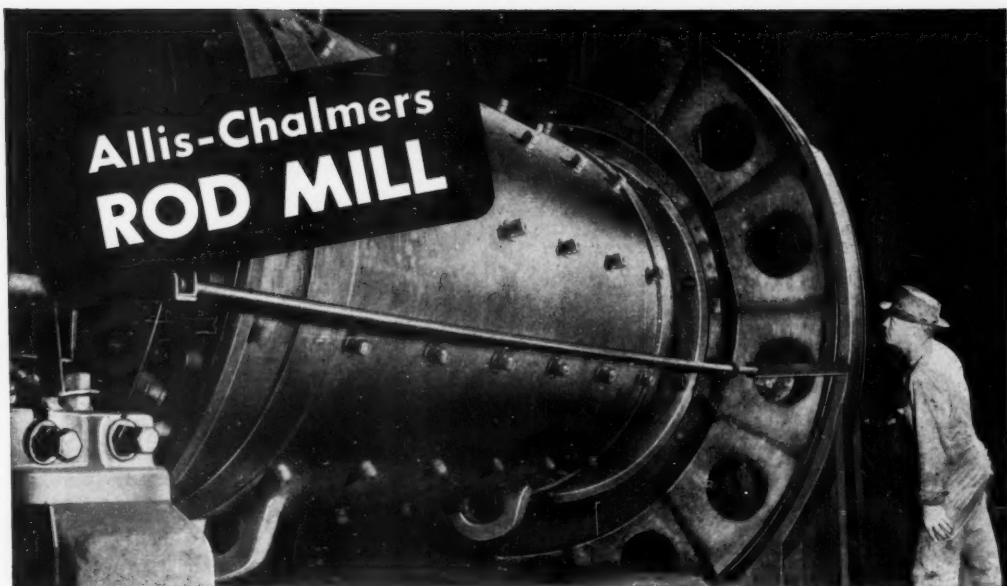
The plant, which has yet to be constructed by the French, will have a yearly output of 1,500 tons. The sands have a considerable quantity of thorium as well as other rare elements which will also be extracted. The board of directors will consist of the chairman and two members of the Indian Atomic Commission as well as representatives from the two French firms.

### Devaluation's Effect On African Mining

The first reaction to the devaluation of the South African pound, which was simultaneous with and to the same extent as the devaluation of sterling, has been a tremendous upsurge in confidence in the mining industry. Everywhere the step has been welcomed as giving the long-sought-for relief which the mines saw little sign of materializing. Boom conditions prevail on the stock market.

The official attitude to the devaluation news was expressed by K. Richardson, president of the Transvaal Chamber of Mines, who welcomed it as a great fillip to South African mining, both gold and base metal, stressed the importance of maintaining full and secure employment in the gold mines, but also advised that the best possible use be made of the windfall to set the Union's economic house in order.

Regarding actual changes in mining policy, the operating companies appear to have adopted a "wait and see" attitude, as several important factors have not yet crystallized sufficiently to enable a final assessment of the position to be made. For example, immediately after the new price of gold (250 per fine ounce) became known, the miners' unions began pressing their 30 percent wage increase demand (hitherto in abeyance pending the report of the gov-



# On the Job 24 Hours a Day...After 27 Years!

**M**ILLIONS OF TONS of sulphide ores have gone through this 6 x 12 ft Allis-Chalmers rod mill in 27 years' operation. On the job 24 hours a day at Tennessee Copper Co., Copperhill, Tenn., it now grinds 87½ TPH, reducing ¾ inch crushed ore to 20-mesh ball mill feed. Sturdiness like this can only be the result of sound mill design.

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by American Trade Journals,  
121 Second St., San Francisco,  
California.

A Miller Freeman Publication

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Publisher . . . W. B. FREEMAN  
General Manager . . . M. F. HOLSINGER  
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Lisbon, Madrid, Ankara, Lima, Rome, Sao Paulo.

WORLD MINING is published the 26th of each month as a regular department of MINING WORLD and is also circulated as a separate section on a carefully controlled free basis to a selected list of management and supervisory personnel associated with active mining enterprises throughout the world.

ernmental commission on mineworkers' conditions) with considerably increased vigor. In addition, whether or not the government's taxation policy will change as a result of devaluation is not known, and only time will show how much the prices of mining stores will rise. Altogether, the position is still extremely obscure, and not for several months will the new pattern of mining operations emerge.

### Nicholson Mines Shows Good Progress

In Saskatchewan, Canada, at the Lake Athabaska property of Nicholson Mines, Ltd., No. 4 zone shaft has been sunk to 150' with sinking continuing. The headframe on No. 2 zone shaft has been erected.

The company is going ahead with the erection of the power line to connect with the Box Mine hydro-electric power supply. A permanent electrically-driven mining plant was installed at No. 4 shaft in October and in the meantime the present plant will be used to sink the shaft to 250' and open two levels. No. 1 shaft has an immediate objective of 150'. The two openings will be about 2,000' apart.

Recent surface prospecting has uncovered a possible new zone to the north of No. 1 but work has not yet reached the stage where the importance of this discovery can be determined.

Nicholson has established four zones carrying uranium oxide, gold and platinum values. Of these No. 4 appears to be the most important, having an indicated length of about 1,300', of which an 180' length, systematically sampled, returned the following values over a three foot width: 1.71 percent uranium oxide; 0.31 oz. gold, plus platinum and silver values. No. 2 zone has been traced for 500' and an 180' length returned 0.32 percent uranium oxide, 0.82 oz. gold and 0.5 oz. platinum (all cut grades) over a three foot width. Six hand-cobbed test lots of ore, weighing 4,264 lbs., taken mainly from Nos. 2 and 4 zones, were shipped to Eldorado Mining & Refining Company and returned \$2,712.87 or 63.6¢ per lb.

### Primary Aluminum Quota Is Set by Japan

Aluminum producers in Japan have set a quota of 25,800 metric tons output for the current fiscal year ending March, 1950, and have divided the quota among the three largest aluminum companies in the country: Showa Denko Company, Ltd., in Fukushima Pref., northeast Japan; Nippon Light Metal Company, Ltd., in Shizuoka Pref., central Japan, and Nisshin Chemical Industry in Shikoku, southern Japan.

Showa Denko is to produce 5,300 tons, Nisshin 6,000 tons and Nippon Light 14,500 tons. Unfortunately the first two plants have frequent power shortages during dry seasons, so that quotas are likely to fall short. However, the 1949 increase in output is so far six times over that of 1948 for the same period.

Japan produces primary aluminum from bauxite imported from the Netherlands East Indies and has been able to import the necessary amount. But, sulphuric acid, pitch cokes and fluorite supplies have been irregular and too small in quantity, which adds to the aluminum industry's problems.

### British Mineral Survey Is Published

In 1946 the British Minister of Fuel and Power set up the Mineral Development Committee to study the mineral resources of the United Kingdom. The report of their findings has just been published and includes the following information:

China clay resources are available for 100 years at least and the barites position is good. However, reserves of fluorspar will last only 15-20 years, a serious fact which more prospecting may relieve as well as improvements in ore dressing and better custom mills.

A potash bed discovered in a borehole in Yorkshire in 1944 deserves further development.

Weardale, parts of Cumberland and Wales have lead-bearing areas worthy of development, but those in Devon, Cornwall and Derbyshire are small with copper likely nil.

Cornwall's tin mines, both at Geevor and the Redruth-Camborne area, show good prospects. The risk of South Crofty mine closing because of the possible breakdown of old Cornish pumps should be removed. A modern pumping plant, according to estimates, would save the company £20,000 per year, and government assistance here is suggested.

The report concludes with a recommendation for setting up a permanent mineral development commission to extend mineral surveys, to explore where necessary, to nationalize mineral rights and to give some further relief from taxation in respect to capital expenditure.

### Italian Drillers to Hunt Dominican Minerals

To advance its program of mineral exploitation, the government of the Dominican Republic has contracted with the Italian engineering firm of Annibale Bodo to carry out extensive exploratory drillings throughout the country, the Dominican Republic Information Center, 507 Fifth Avenue, announced recently.

The Bodo group will be comprised of top Italian experts, who will be committed to make a total of 5,000 meters of drillings within a 12-month period. Four modern diamond drills and necessary supplementary equipment will be used.

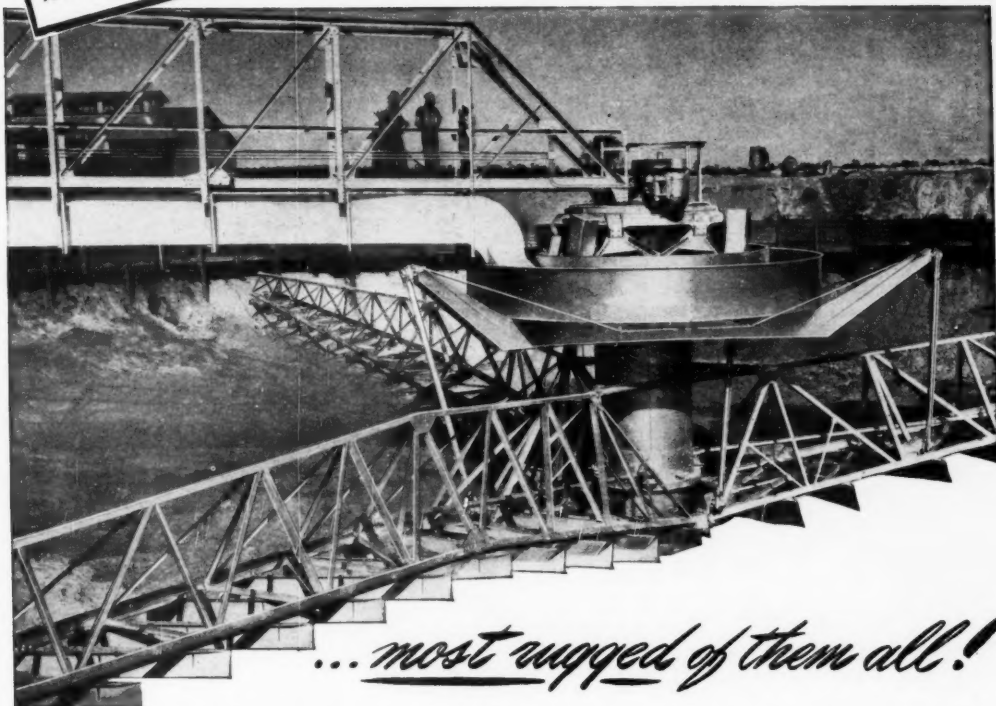
Dominican personnel will work with the Italian group. At the end of the contract year, the Dominicans will take over the project, including equipment, after having received complete training in its use.

The drilling equipment also will be used to effect a more accurate estimate of the value of presently known mineral deposits. Previous estimates have been made on the basis of less accurate magnetic soundings and through the sinking of exploratory shafts and headways.

The program is being carried out under the direction of the Bureau of Mines of the Dominican Department of National Economy, which has for some time been directing an intensive survey of Dominican mineral resources. It is in line with the full national program inaugurated by President Rafael L. Trujillo for the intensive economic development of the Dominican Republic. The aim is toward the greatest possible degree of national self-sufficiency and increased national prosperity.

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**RESEARCH — ENGINEERING — EQUIPMENT**





Left: John D. Bardill, mining engineer, U. S. Bureau of Mines; S. H. Lorain, regional director, Alaska region, U. S. Bureau of Mines; A. J. Haley, geologist, Great Northern Railroad; A. L. Strom, industrial development engineer, Great Northern Railroad. Right: E. C. Barkstrom, chief engineer, Stephens-Adamson Company; P. R. Hines, consulting engineer, Stephens-Adamson Company; I. M. Le Baron, research metallurgist, chief of ore dressing, International Minerals & Chemical Corporation; James A. Barr, Jr., research metallurgist, consulting engineer, Armour & Company.

## AMC OPERATING SESSIONS

**Better attended by far than the politico-economic sessions, miners and millmen discussed their mutual problems and exchanged operating ideas**

Operating sessions at the American Mining Congress held in Spokane, Washington, in late September embraced a number of technical subjects. Among these were milling, flotation and sink-float plant practice, underground belt conveyors, two papers dealing with the application of diesel power to open pit and underground mining, inclined shaft sinking, mine mechanization, underground dust control, non-metallic mining, suspension roof supports, a paper dealing with future ore discovery, advances in mine safety and finally, a series of papers on drilling that ranged from sinking 12" holes to throw-away bit types.

### Perspective of Milling Operations

Homestake's chief metallurgist, Nathaniel Herz, presented a paper, "A Perspective of Milling Operations," which, in brief, stated that the processes of comminution may be divided into two classes: Crushing and grinding. Here the division is based largely on size of product and only partly on method used. A border-line zone exists between crushing and grinding, with grinding moving up into rather coarser sizes and taking over more territory. Fine reduction crushers of the cone or gyratory type are coming into more general use, displacing rolls. Rod mills, particularly in larger plants, are crowding into the same field.

Rod mills are coming into greater use as fine crushing mills and ball mill diameters have increased with lengths about equal to the diameter or slightly greater.

Rods are usually 3" in diameter, of high carbon steel. Balls may be chill-cast iron in small sizes, ni-hard, forged carbon steel, or alloy steel. So many factors are involved in the choice of liners that no general rule can be formulated. In wet grinding operations, classification is generally required, and almost every ore has its own individual problems. Sepa-

rations by screening and classifying are considered as physical processes and, in various operations constituting gravity separation, progress can be traced from simple sluices and riffles to automatic strakes and Humphrey spirals, from pans to modern tables, and from wicker baskets to modern jigs. Heavy media processes are gaining in importance and wet magnetic separators are well developed. Electrostatic separators also are available for specialized use. A recent development is the Dutch States cone that multiplies the force of gravity by centrifugal action.

Flotation is in a class by itself. This is a process that combines physical and chemical effects. Flotation of non-metallics is making great strides.

Flow sheets trend towards simplification, usually resulting in the use of fewer but larger units and often in a reduction in the number of points where recoveries are made. This is caused in part by the higher costs of labor and supplies, by depletion of richer orebodies and by higher taxes that necessitate economies all along the line.

### Flotation and Plant Change

Comparing the performance of the old crushing plant with the recently installed unit at the mill of the St. Joseph Lead Company's Edwards Division Balmat plant, Jay J. Burns, mill superintendent, described performance in a paper entitled "Improved Flotation from Crushing Plant Change."

Crushing rate has been increased from 125 to 170 tons per hour and storage capacity at the secondary crushing plant increased from 750 tons of mill feed to 1,400 tons. A number of objectives were set in asking for the new crushing plant which have been met. These are: Lower cost per ton of crushed ore; finer feed to rod mill; higher crushing rate; elimination of rolls; greater storage capacity; concentration and simplifi-

cation of operations; and improved safety.

The flow sheet of the new crushing plant is extremely simple and is composed of one primary crusher, a 22" gearless gyratory, and four secondary crushers operating in closed circuit with vibrating screens.

### Sink-Float

"The introduction of sink and float to the Sullivan concentrator flow sheet has proved to be a definite benefit, declared H. R. Banks, mill superintendent, Consolidated Mining & Smelting Company of Canada, Limited, in a paper describing the "New Sink-Float Plant at Sullivan Concentrator."

Tracing the history of sink and float through the earliest stages to its present transitory perfection, Mr. Banks summarized the sink and float process as follows: Screening and washing of the feed to take out material too fine for sink and float treatment; the actual separation; the recovery of the medium from both products; the preparation and upkeep of the medium.

Preparation of the feed is extremely important and unless feed is properly screened of fines and drained to a constant moisture content, fines and excess moisture will upset the medium. The separator is a tank 11 x 11', tapered to connect with an elevator and holds 964 cu. ft. of medium that weighs approximately 90 tons. Undiluted medium is drained away from the sink and float products and passed over a 4 x 4' screen fitted with 40-mesh cloth to return to the separators.

### Conveyors Underground

"Underground Belt Conveyors at Potash Company of America" was the subject chosen by R. G. Haworth, assistant general manager, Potash Company of America, for presentation at the congress.

Rough terrain was the first compelling reason for agreement that belts



would be superior to locomotive haulage, thereby eliminating over one mile of track in each panel. Furthermore, ups and downs in the roadbed would be eliminated as well as locomotive and car derailments.

As installed, each belt is approximately 800' long and will discharge into cars with elimination of double track and cross-overs. Ore, after blasting, is loaded by caterpillar mounted loading machine into shuttle cars which are driven to one of three loading stations and discharged onto the belt. Material is discharged from shuttle car by driving up a ramp from where the ore falls on an inclined plate and from there slides onto the belt. At the belt head one motorman operates the belt and loads the ore into mine cars.

## Auxiliary Diesel Engines

Alfred T. Barr, mine superintendent, New Cornelia Branch, Phelps Dodge Corporation, presented a paper on "Diesel Engines for Auxiliary Power on Electric Locomotives at Ajo!" This outlined in some detail the fact that Phelps Dodge operates an open-pit mine at Ajo, Arizona, from which 130,000,000 tons of copper ore and 94,000,000 tons of waste rock has been removed during the last 32 years. The pit now covers about 320 acres and has an average depth of 400' below the rim. Seventy-ton, 800-hp. steam locomotives were the chief motive power until replaced by electric locomotives in late 1947. Supplementing the steam locomotives for the last two years of their operation were three 125-ton, 1,000-hp. diesel-electric units, and the use of these units were continued after electrification of the haulage system. The availability of the diesel locomotives, calculated on the basis of hours worked out of the possible hours of scheduled operation, is 95 percent.

## Underground Diesel Mechanization

S. S. Clarke, general superintendent of mines, Eagle-Picher Mining and Smelting Company, described "Diesel Power Mechanization Underground."

Installed under almost universal prejudice, the first diesel units operated in the company's mines were watched closely by the industry. The



TOP: Two men well known for long association with Canadian mining enterprises compare notes—W. I. Nelson, general manager, Granby Consolidated Mining, Smelting & Power Company, Limited, and Frank E. Woodside, secretary, British Columbia and Yukon Chamber of Mines. BOTTOM: H. Gordon Poole, professor of mining engineering, University of Washington, recently returned from Mexico City, where he had been stationed for a year as mining-metallurgical consultant to the Mexican government for the U. S. Bureau of Mines, and R. V. Haadt, sales engineer, Oliver Filter Company.

staff was of the opinion that the carbon monoxide hazard could be reduced to a permissible low, and today it is proved that diesel units can be operated successfully. Only in starting, or sometimes when idling, or with the engine in need of overhaul, will be the CO content of the exhaust exceed the permissible minimum.

Today a fleet of 25 diesel-powered trucks operate in several of the company's mines with complete success, thus permitting the low-grade mining district to work for several years beyond the economical limit of track haulage. Diesel haulage is extremely flexible. It permits moving into old mines and allows the recovery of high-grade orebodies that frequently lead into another ore run.

Two types of truck bodies are in use—the semi-trailer and the dump bed. The use of trucks is so well established now in the company's mines that other districts with similar conditions are investigating the possibilities of change-over to trucks.

Four mines that have both diesel and battery trucks show an average cost of \$0.224 per rock ton. Another cost figure is that of a group of mines that still use tail-ropes haulage at an average cost of \$0.441 per rock ton. Other methods that embrace battery locomotives in connection with inclines show an average haulage cost of \$0.696 per ton.

## Inclined Shaft Sinking

How the Bunker Hill Mining & Concentrating Company sank an inclined shaft in Idaho's Coeur d'Alene district and made new records for daily and monthly sinking was told by Stanley W. McDougall, mine superintendent, in a paper that described "Sinking Bunker Hill's Auxiliary Inclined Shaft."

Plans calling for sinking three-compartment shaft inclined 50 degrees 1,100' were put into effect late in 1948. In July, 1949, the shaft was bottomed 1,370' below sea level, thus making it the deepest shaft in district below sea level.

Briefly, the round was made up of 44 holes, breaking to a V-cut. Two drills were used in putting in the round and casing cut from old 2" pipe was used to start nearly every hole. In starting the holes, a 2½" regular bit on a 44" rod was drilled through the loose muck and several inches into the solid rock. After the casing was seated, the hole was drilled with 1½" gauge bits. All drill equipment was carried on a drill tender that was lowered in the manway skip compartment to the bottom for drilling the round and hoisted after the round was drilled. Each hole was shot with six to eight sticks of 40 percent special gelatin dynamite. Primer cartridges were placed in the bottom of the hole and ten delays were used.

Direct sinking costs per foot were as follows: Labor, \$101.41; supplies, \$41.08; miscellaneous, \$25.47; grand total, \$167.96.

## Small Mine Mechanization

Roger V. Pierce, consulting mining engineer, needs no introduction to the readers of MINING WORLD, as he will be remembered as the author of the splendid series of articles on "Scraper

Continued on Page 36

Left: Frank A. Taft, mining engineer, Bonanza Lead Company; S. S. Clark, general mine superintendent, Eagle-Picher Mining & Smelting Company; Robert E. Sorenson, geologist, Hecla Mining Company; G. M. Fowler, consulting geologist. Right: Industry, government and higher education are represented among these four men, who are: Olaf N. Rave, mining geologist, chief Minerals Deposits Branch, U. S. Geological Survey; D. L. Messon, professor of mining engineering, Washington State College; S. I. Bowditch, mining geologist, American Smelting & Refining Company; A. E. Weissenborn, mining geologist, regional geologist, Northwestern States, U. S. Geological Survey.



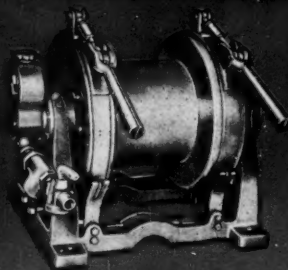


JOY L-111 Hoist, powered by JOY's reversible "Pistonair" Motor

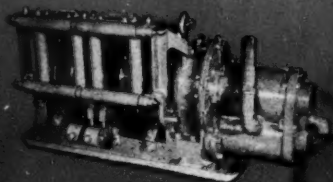
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- ★ **Minimum Maintenance**



*Above, JOY E-112 Hoist, with a 5 H.P. JOY exclusive "Turbinator" motor. Can be mounted on a car, timber, column or bar for every type of hoisting job.*



*Above, JOY PS-311 Slusher for all-purpose sweeping jobs. Illustrated with 10 H.P. "Turbinator" motor, but features interchangeable ability of design to suit conditions.*

*Left, JOY AW-80 Air Winch, a compact, rugged, flexible hoist for every small job. Weighs only 85 lbs., will lift 500 lbs., is powered by reversible piston-type motor.*



*JOY C-111 heavy-duty Shaft Hoist, with a 50 H.P. slip ring motor. Can be diesel-driven if desired. Lifts 5000-6000 lbs. at speeds up to 300 ft./min.*

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Left to right: F. R. McNamara, Gardner-Denver Company, district manager, El Paso; J. W. Brauns, General Electric Company, Erie, Pa.; R. M. Simpson, sales engineer, Crucible Steel Company, caught while discussing the mining business; Roger O. Oscarson, secretary, Northwest Mining Association, who was in large part responsible for the success of the congress, as he was vice chairman, General Arrangements Committee; Wallace G. Woolf, superintendent, Electrolytic Zinc Plant, Sullivan Mining Company, and J. J. Curzon, general manager, Chelan Division, Howe Sound Company.

#### Continued from Page 33

Mining Practice" that appeared about two years ago.

In his paper on "Small Mine Mechanization" he gave a report that pointed up the fact that "mechanization means not only the elimination of hand mucking, hand drilling or hand tramping which is recognized as having been accomplished by the slusher and the loader, drills and haulage motors, but it must go further.

"It is necessary to service this machinery, which, when analyzed, adds up to the steady operation of the high investment cost machines involved in the three of four major job classifications of a mining operation."

In several mines, drifting is becoming nearly 100 percent mechanized. By making machinery available in each working place, the crew is continuously operating machinery throughout the shift and it is just as important to have machinery available in other major underground operations such as stoping, driving sublevels, subdrifts, raising, sinking winzes, raising inclines or shaft sinking.

#### Dust and Lung Disease

"Once dust becomes air-borne, it is very difficult to remove from the air stream. It is for this reason that every effort should be made to prevent generation of dust concentrations at their source," declared John W. Warren, assistant ventilation engineer, Anaconda Copper Mining Company, while discussing "underground Dust Control."

"The possible hazards resulting from contaminants in the atmospheric environment are much before the public at present," continued Warren. "In the past few years, numerous and varied conditions have caused the leaders in the mining industry not only to attack but also to study the subject in order that factual data could be obtained from which practical preventive measures could be formulated and prosecuted."

Warren presented a great many data, among which the following stand out: In the Butte district collaring holes dry is a serious offense and a workman is subject to discharge for such infraction; all dead-end headings require auxiliary ventilation when advanced in excess of 25'; approximately 3,000,000 cu. ft. of air per minute is circulated through

the Butte mines. During a somewhat normal operation, the weight of the air circulated in a day is approximately 20 times that of the total rock hoisted. During capacity operation more than 700 cu. ft. of air per minute is supplied to each man underground and approximately 1,000 auxiliary blowers operate primarily blowing on more than 40 miles of air transmission duct.

#### Northwest Nonmetallics

"The Pacific Northwest is well supplied with the usual nonmetallic minerals and aggregates that are necessary for normal industrial development," reported Shelton L. Glover, supervisor, Washington State Division of Mines and Geology, in describing "Nonmetallic Mining in the Pacific Northwest."

Regarding the extent of operations and payrolls, in 1948 Idaho had in operation 33 plants producing industrial minerals and had an annual payroll of approximately \$750,000 that employed 230 workers. Oregon had approximately 100 plants employing about 1,100 men with a payroll of nearly \$4,000,000 annually. Washington had in operation approximately 625 plants giving employment to between 2,200 and 2,600 men and had payrolls for the year that totalled more than \$8,500,000.

#### Suspension Supports

E. A. Morgan, mining engineer, Roof-Control Section, U. S. Bureau of Mines, read a paper entitled "Suspension Supports." In this paper Morgan said: "Suspension supports, if applicable and properly installed, are considered permanent, and should last for the life of the mine."

Mines have utilized the principle of suspension supports for many years. The St. Joseph Lead Company has used it for over 20 years in southeastern Missouri. Experience indicates that this method of support will afford an effective means of combating roof fall accidents. The basic method of suspension supports, as developed by the St. Joseph Lead Company, is to install at an angle 1" rods, ranging in length from 5 to 8', on about 4' centers along a 4" channel bearing plate that has been bent to conform to the contour of the exposed roof.

Advantages gained from the use of suspension supports are: A positive systematic method of roof support at the working face; time required

for setting safety posts or resetting timbers knocked out by blasting or loading machines is eliminated; side clearance along roadways is improved by eliminating vertical legs; less storage space is required for roof supporting materials than ordinary timber; ventilation usually is benefited due to decreased resistance to air flow through mine passageways; cost of installation of roof support ordinarily is reduced when suspension supports replace conventional timber sets; properly installed suspension supports may be considered permanent and should require no further attention.

#### Ore for the Future

E. H. Wisser, consulting mining geologist and professor of economic geology, University of California, spoke on "Tomorrow's Ore," and declared that orebodies to meet America's future needs may be found beneath lava flows and capped rocks.

"Interest in such covered deposits has been whipped up of late by discovery of the San Manuel disseminated copper deposit in Arizona, covered by thick Gila Conglomerate. But discovery of covered deposits is far from new, especially around the fringes of known districts; the San Manuel discovery owes its interest to the fact that it brings in a new district," Wisser declared.

Furthermore, he cited examples of known productive mining districts that have been known to extend under post-mineral cappings and indicated that no reason exists why the reverse of this fact should not be true.

"In regions covered by volcanic rocks, volcanologists may be needed," said Wisser. "In what areas are the Columbia River basalts thin enough to offer hope for exploration below, perhaps by geophysical methods?"

"Intelligent exploration for capped deposits demands a broader, integrated knowledge of the geologic history of the Cordilleran region than we probably possess today.

"For instance, exploration beneath capping should be concentrated on those areas in which erosion has partly cut down into the underlying, potentially ore-bearing rock, rather than where any ore existent might lie far below the capping. This calls for a knowledge of erosion cycles in the area peripheral to the expanse of capping. . . .

Continued on Page 39





## 8 Million Tons in 28 Years... Proves Sound Design of Handling Equipment

Built 28 years ago, the S-A conveyor system in this plant has proved its sound design by handling 8 million tons of wet iron ore through separation, crushing, drying, screening and storage . . . and it is still going strong!

Designing conveying systems to handle bulk materials in large volume at lowest cost per ton has been the work of S-A engineers for almost 50 years. Their "grass-roots" knowledge of the sound design and engineering of bulk materials handling systems is yours for the asking.

S-A engineers will be glad to give you their recommendations for a new conveyor unit or an entirely new handling system. Write us today.

*Principal S-A equipment in this plant consists of a traveling chain grizzly, a 110-foot long pan conveyor, three pan feeders and five belt conveyors. Chain grizzly receives wet ore from pit and passes fines to belt conveyor below. Lumps are routed to crusher via pan conveyor and crushed ore rejoins fines on belt conveyor to storage bins. S-A pan feeders withdraw wet ore from bins and feed to rotary dryers. Other belt conveyors move dry ore to storage.*

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**DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT**  
NOVEMBER, 1949 [World Mining Section—15]



**P&H** *added safety means added production*

## ALONG THE IRON RANGE!

Here are just a few of the Added Values that change down-time and delays into actual digging time . . . added production.

**"Run away" Dangers eliminated** — independent propel keeps crawler geared to propel power at all times.

**Automatic Safety Brakes** — prevent damage and delays — all brakes are spring set automatically when power is cut off.

**Excessive Boom Jacking is prevented**

— P&H's boom limit switch positively prevents raising boom above normal position. You save on boom cable replacement costs.

**Accessible Controls** — all controls including propel brakes and steering are within easy reach of the operator.

These and other important Added Values explain why users along the Iron Range are reordering P&H Electric Shovels.



**P&H**

CORPORATION



Continued from Page 36

"In northern California, the belt of Nevadan ore deposits with northwest trend, starting with the Mother Lode, eastern gold belt, and foothill belt, on the southeast, and ending with the gold and copper-lead-zinc deposits of northwestern California and southwestern Oregon, is interrupted by the comparatively narrow tongue of Lassen and earlier volcanic rocks.

"In Montana, several patches of alluvium are surrounded by mining districts."

In concluding his remarks Wissner stated: "The object of this paper is suggestive only, to focus attention on some general aspects of the problem of concealed ore deposits."

#### Safety Practice

"I feel sure that a good share of the progress made in safety in the Lake Superior district can be attributed to the fact that we have no 'trade secrets'," declared R. F. Wilson, safety supervisor, Oliver Iron Mining Company, when discussing "Advances in Safety—Lake Superior District."

Wilson said that a two-day safety conference is held annually at Duluth, where more than 600 men from the Iron Country mines gather. Another very worthwhile group is the Lake Superior Safety Exchange, where every company participating is asked to submit two written questions pertaining to mine safety to the group prior to the meeting that are answered in writing by the members of the exchange.

Practical suggestions treated in Wilson's paper were on eye protection, personal protective equipment for the miner, and special emphasis was placed upon safety observations made by foremen. Great care is exercised in placing new men in Oliver's mines and proper induction of new men is considered a prime requisite in preventing accidents.

#### Drilling Big Holes

"Drilling and Blasting Twelve-Inch Holes" was the subject of a paper by G. J. Ballmer, superintendent of mines, Chino Mines Division, Kennecott Copper Corporation.

The choice of 12" holes for exploiting the Santa Rita open pit copper deposit resulted principally because holes of this size afforded nearly twice the volume per foot depth available for powder, as compared to 9" holes. No saving of powder was postulated, the estimate being that the saving would be made on footage of hole drilled. It has been satisfactorily demonstrated that a 12" can be drilled as fast as a smaller hole, provided that tools of proper size and weight were used. By so doing, time and labor cost are the same and the only additional cost is a slightly greater one for bits.

In a symposium on single-pass bits, G. L. Craig, director of sales and

research, Calumet & Hecla Consolidated Copper Company; J. S. McIntosh, mine manager, Sinton Unit, Sheep Creek Gold Mines, Limited, and R. S. Hooper, assistant mine superintendent, Bunker Hill & Sullivan Mining & Concentrating Company, presented many data on performance of various types.

Craig, in introducing his subject, said: "The conditions governing the selection of a suitable type of detachable drill bit for the drilling problem, whatever it may be, are quite dissimilar and the ultimate choice of bit type must involve the consideration of many factors."

He presented specific data on the Liddicoat bit, saying: "... that, in common with every other type of bit, the Liddicoat one-use type has its limitations." In summing up the features that contribute to the performance record of this type of bit, the following was mentioned: A high order of drilling speed is made possible by the use of a short but effective pilot which chips the ground ahead of the primary cutting points; the Liddicoat has a maximum hardness because it is always a new bit, the original hard surface of a new bit not being lost by regrinding; loss of bits at any mining or quarrying operation is an important cost item; therefore, the low cost one-use bit offers an opportunity to effect a substantial decrease in mining costs.

J. S. McIntosh gave data on the performance of the Craig bit, a four-winged type, soundly engineered and manufactured to rigid, uniform specifications. His conclusions state that: The single-pass bit gives cheaper and faster drilling than conventional steel because: (a) No labor is required for re-treating other than rods; (b) cost of distribution is negligible; (c) bit faces are higher quality and are more uniform in quality than can be produced economically in the mine shops on standard steel lengths. The single-pass bit gives cheaper drilling than the multi-pass bit because additional uses of multi-pass bits do not offset the following advantages of the single-pass bit: (a) Bits are cheaper in first cost; (b) no labor is required for bit re-treatment; (c) cost of lost

and broken bits is proportionately less.

Bunker Hill's assistant mine superintendent, R. S. Hooper, told of the tests begun at Bunker Hill more than 18 months ago on the "Throw Away" bit developed by the Throw Away Bit Corporation of Portland, Oregon. The results have proved so encouraging that the bits are now going into service in the stoping operations and it is expected that within the near future the major part of all drilling in the Bunker Hill mine will be done with this type of bit.

Concluding his paper, Hooper said: "We feel that the 'Throw Away' bit has distinct advantages in a very large percentage of the drilling that is to be done in the Bunker Hill mine, and that it is especially suited to the medium hard, very abrasive quartzites that predominate in our development work. In the drilling in stopes ... the results have also been excellent."

John J. Curzon, manager, Chelan Division, Howe Sound Company, gave details of his company's change from conventional steel in 1937-38 to Carset bits in the first four months of 1949. Beginning with conventional steel, the company changed to Timken bits from 1941 through 1943, changing to Craig single-pass bits in 1944 and continuing to the end of 1948, when a change was made to Carset type bits.

"With the use of long shells and Carset bits firmly established," commented Curzon, in indicating some of the improvements in performance, "the next step in our research program was to try a jumbo equipped with two automatic drills on 8' chain feeds. Excellent results were obtained and 7' rounds were drilled out in 1½ to 1¾ hours in a 7 x 7' drift, including setting up and dismantling time. This combination of equipment means that from two to three rounds can be drilled now within the same period of time needed to complete one round a few years ago. Because of this increased drilling speed, bonus prices from drifting with this type of jumbo can be lowered an additional 29 percent."

Discussing mining geology were these three well-known men, S. I. Bowditch, geologist, American Smelting & Refining Company; E. C. Stephens, geologist, Anaconda Copper Mining Company, and E. H. Wissner, consulting mining engineer and professor of economic geology, University of California.



# GEOPHYSICAL AND GEOLOGICAL APPROACH TO MINING PROBLEMS

## Part II

By Sherwin F. Kelly

Sherwin F. Kelly Geophysical Services, Inc.  
Wilmington, Del., and Geophysical Exploration Ltd., Toronto, Ontario, Canada

Where the problem involves determining the depth to horizontal interfaces, operations are centered at a given point and the contacts so disposed as to give deeper and deeper penetration beneath that fixed observation post. This latter technique is particularly useful in measuring the depth of over-burden or depth to bedrock, in connection with placer problems, dam construction, and investigation of ground water supplies (Fig. 6).

Unlike the rock formations, which exhibit electrolytic conductivity by reason of the moisture they contain, most of the sulphides and related arsenides, antimonides, tellurides, etc., are endowed with metallic conductivity. They conduct electricity like a copper wire, and in consequence their resistivities are extraordinarily low, in the neighborhood of 0.1 meter ohm and less. As a general rule, those sulphides and related minerals which show metallic lustre, may be expected to show metallic conductivity; the only exception to this rule of which I am aware, is stibnite. For this reason I mentioned it earlier, along with sphalerite which does not have a metallic lustre, as being adapted to exploration by the gravitational method.

### Sulphide Bodies

The sulphides, and related compounds, possessing the low resistance of metallic conductors can, of course, be prospected by the electrical resistivity method, but there is another

technique which is far better adapted to their discovery. This method is known as the spontaneous polarization technique, the name serving to signify that such metallic conductors as sulphide bodies spontaneously exhibit electrical polarity. This phenomenon results from the fact that a metallic conductor in contact with electrolytes (as sulphides in contact with ground moisture) generates an electric current,—the principle of any electrical battery. The current generated by that electro-chemical action may produce as much as several tenths of a volt potential, at the surface of the ground, above the apex of the sulphide body (Fig. 8). Measurements taken at the ground surface of the potentials and distribution of the current make it possible to predict the location and rough outline of the causative body (Fig. 9). This body may normally be assumed to consist of sulphides, or related minerals, although there are a few other substances capable of generating currents in the same manner. Those commonly encountered are anthracite coal, pyrolusite, psilomelane and graphite. Because graphite reacts in the same manner, the presence of graphitic schists may complicate the problem of the geophysicist. In general, however, it

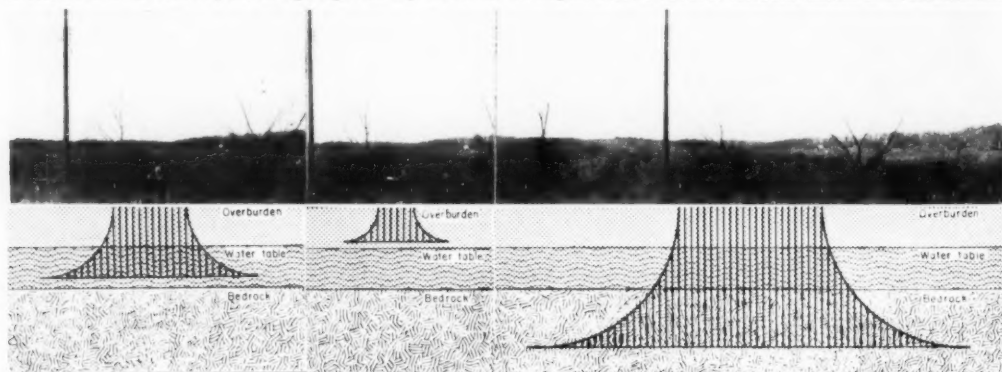
may be assumed that deposits of sulphides, tellurides, antimonides, etc., are amenable to discovery and mapping by the spontaneous polarization technique. When the non-conductive sulphides sphalerite and stibnite, occur mixed with conductive ones, the latter still react, and the body as a whole may be detected electrically.

### Seismic Exploration Techniques

The mineral composition of a formation has little importance in the last of the four main geophysical methods, the seismic technique. The characteristics of principal importance in determining the seismic reaction of a formation are its density and elasticity. These control the speed with which elastic wave vibrations of seismic character will be transmitted, and are closely related to the hardness and compaction of the formation (which are, of course influenced to some extent by its mineral composition). The igneous intrusives usually have a higher speed of transmission than do the sedimentary rocks, and the older sediments are usually faster than the younger ones; a particularly pronounced contrast exists between unconsolidated overburden and bedrock. As illustrative examples, alluvium ordinarily shows wave velocities of 1,000 to 2,000 ft. per second; recent sediments, more or less consolidated, will have speeds ranging between 5,000 and 9,000 ft. per second; shales lie in the range of 6,000 to 13,000 ft. per second; the

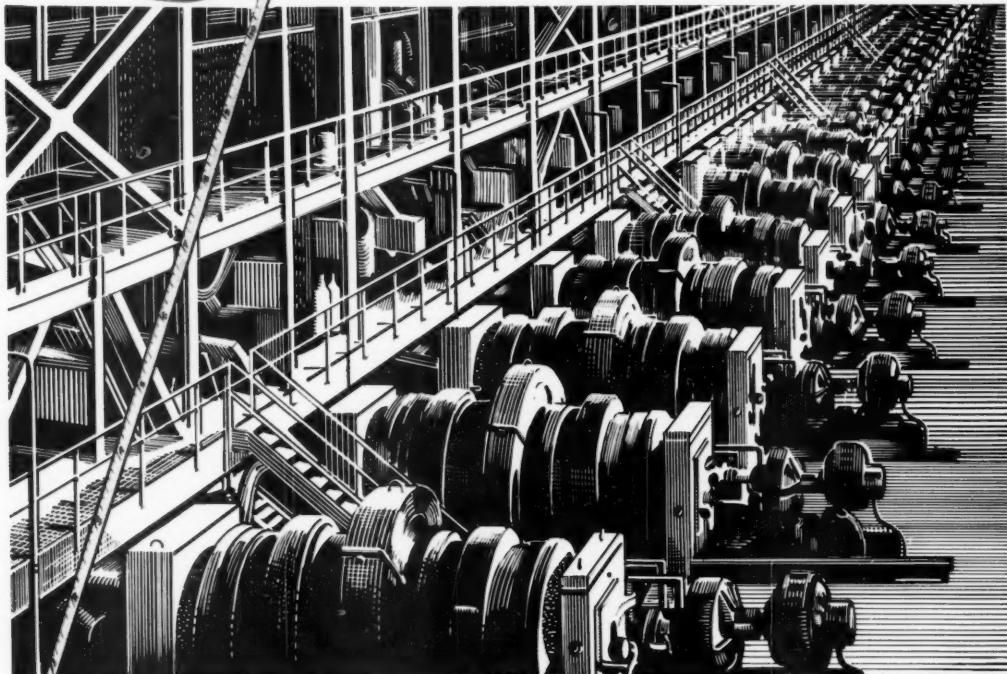
Continued on Page 44

Fig. 6. Schematic cross-sections showing principles of electrical resistivity depth determinations. The left section indicates moderate resistivity recorded, the center low resistivity and the right high resistivity. The vertical hatching indicates the volume of subsurface included in the measurements.





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# FINE-ORE TREATMENT?

## THE DUTCH STATE MINES CYCLONE SEPARATOR MAY BE THE ANSWER TO YOUR PROBLEM

Two years ago, Cyanamid became Technical and Sales Representative for the Dutch State Mines Cyclone Separator Processes for the concentration of metallic and non-metallic minerals. Since then, intensive pilot plant testing in the Cyanamid Mineral Dressing Laboratory as well as field testing and mill application have indicated some of the economic uses of these processes.

The place of a new process is seldom easy to define. Additional data come to hand constantly. Current viewpoints are always subject to change and expansion. But, the applicability of these processes is now sufficiently clear to warrant the active interest of anyone concerned with fine-ore treatment . . . particularly in the size range between that treated by Heavy-Media Separation and froth flotation.

\* \* \*

Broadly the Dutch State Mines Cyclone Separator Processes merit study and testing:—



*As low-cost methods of pre-concentrating ore or tailings* where the feed contains only a small percentage of high-value minerals.

**EXAMPLE: TIN TAILINGS.** A tin tailing containing .75% Sn has been concentrated to 4% grade. This is higher than average mill feed. Other tests on tin ores have demonstrated that equally good results can be obtained; that either magnetite or autogenous media may be used; that the cost of treatment would be but a small fraction of the values recovered.

In some instances, re-run zinc and other base-metals tailings dumps may be milled profitably by using the Dutch State Mines Cyclone Separator. In the size  $\frac{3}{8}$ " and below, tests show that 50% recovery can be made from zinc tailings containing only 1% values. This alone represents a potential "reserve" of many thousand tons of zinc metal!



2

To produce directly a marketable concentrate from fine material of low value.

EXAMPLE: *FINE IRON-ORE*. Pilot plant tests indicate the economic use of the Dutch State Mines Cyclone Separator, employing an auto-genous medium, for the final concentration of fine sizes. Tests on certain iron ores on sizes above 48 mesh have shown recovery and grades higher than any other process now in use for treatment of -3/16" materials.

3

To treat fine feeds which are inherently not amenable to jig or table treatment or cannot be economically concentrated by froth flotation.

EXAMPLE: *SPODUMENE*. Despite the ample difference in specific gravity between mineral and gangue, the flat shape of spodumene crystals often precludes the use of tables or jigs. Hand-picking has been the traditional method of concentration. The Dutch State Mines Cyclone Separator, using a low-cost magnetite medium, is capable of making an accurate, low-cost separation on -10 mesh spodumene. Numerous other "untreatable" feeds have responded to the Dutch State Mines Cyclone Separator with studies going forward looking toward mill applications.

4

For any unusual concentration problem to improve present methods and to reduce costs.

EXAMPLE: *DIAMOND GROUND*. Grease tables, employed to separate industrial diamonds from gangue, are highly efficient as the final recovery step. They have, however, relatively low capacity and involve the use of a considerable labor force. A substantial reduction in gangue before tabling is to be desired. In the size range 10 mesh and below, tests show the Dutch State Mines Cyclone Separator to be an extremely accurate method for pre-concentrating this valuable feed before treatment on the tables.

EXAMPLE: *POTASH*. Pilot plant tests on several potash ores show that the Dutch State Mines Cyclone Separator Processes can make an accurate separation between Sylvite (sp.g. 1.98) and the Halite (sp.g. 2.15) and gangue minerals, despite the small difference in their specific gravities. Separations are made on the 1/4" x 0 size range, using a saturated solution of brines with magnetite as the medium.

The Dutch State Mines Cyclone Separator Processes, utilizing powerful centrifugal-centripetal forces, offer new means to separate a troublesome size fraction by specific gravity difference. Cyanamid has commercial-size Dutch State Mines Cyclone Separators operating at the Cyanamid Mineral Dressing Laboratory for continuous-unit testing of metallic and non-metallic minerals. We welcome correspondence or discussion with Cyanamid Field Engineers as a preliminary to testing on your ore, and will be glad to give you the benefit of our test results.



AMERICAN *Cyanamid* COMPANY

MINERAL DRESSING DIVISION

30 ROCKEFELLER PLAZA



NEW YORK 20, NEW YORK

## Geophysical

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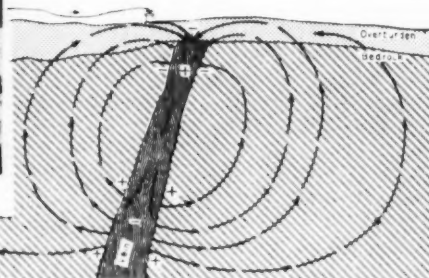
speeds in sandstones range from 8,000 to 14,000 ft. per second, with limestones a little higher; the velocities in granite are usually from 17,000 to 21,000 ft. per second. These wide differences in transmission velocities for seismic waves make possible the differentiation of igneous from sedimentary rocks; shales from limestone or sandstone, older from younger sediments, and overburden from bedrock.

### Use of Explosives

To determine the seismic transmission speeds of subsurface formations, the geophysicist employs a shot of dynamite to generate artificial seismic waves. The resultant ground vibrations are picked up by sensitive geophones (portable seismographs) at distant stations, placed from a hundred feet or so to several miles from the shot point, according to the problem involved and the particular field technique being employed. In the reflection method, the geophones record those waves which have been reflected back to the surface from deep lying formations, as an echo is bounced back off a hard wall; Fig. 10. The seismic waves obey the same laws of reflection and refraction as do light waves, and the fact that the earth vibrations are refracted back to the surface from deep lying horizons of high speed transmission, is made use of in the



Fig. 8. Flow of electric currents spontaneously generated by a sulphide body; current path through measuring apparatus at surface also indicated.



refraction method. The time elapsing between the explosion and the pick-up of the vibrations, in both the refraction and the reflection methods, then enables the operator to deduce the nature of the formations traversed and to determine accurately the depths at which distinctive ones lie.

The seismic technique has been widely employed in prospecting for oil, but very little in mining exploration. It has been adapted, however,

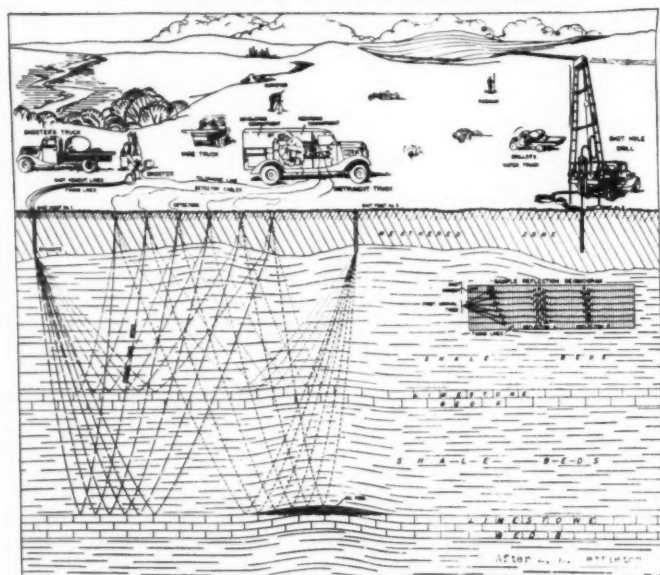
to measuring the depth to bedrock, and for this purpose has had a considerable field of application in road construction by the U. S. Bureau of Roads for pre-determining the depth of earth and rock cuts, and in exploration of proposed dam sites by the U. S. Army Engineers.

### Radioactive and Chemical Techniques

In the foregoing outline the geophysical methods of most general application have been discussed, but mention should also be made of some techniques whose utility at present covers a narrower range. These are the radioactive, the geochemical and the biogeochemical methods; they all fall in the category of methods utilizing fields of force or phenomena which the geophysicist can not modify or control.

In the geochemical technique, chemical analyses are made of the constituents of soil, or rock. In some cases, concentrations of ore mineralization in the underlying rock will manifest themselves by an abnormally high concentration of the corresponding metals in the superjacent soil. In both underground and surface prospecting, useful guidance may also be derived from the study of rock alteration, as some types may be indicative of metallic mineralization near by, whereas other types have no relationship to such mineralization. The technique of biogeochemical prospecting may be considered a modification of soil analysis, as it has been observed that some types of plants tend to absorb greater quantities than normal, of metallic elements which are present in abnormal amounts in the soil whereon they grow. The chemical analysis of plant

Fig. 10. Diagram of seismic reflection survey. (By permission from "Geophysical Prospecting for Oil," by L. L. Nettleton, copyrighted 1940. McGraw-Hill Book Company, Inc.)





## A Good Shovel Works Better with an Amsco Dipper

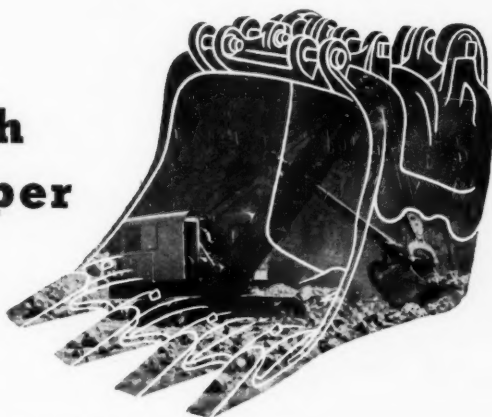
Made of austenitic manganese steel for resistance to impact, pressure, and abrasion, Amsco dippers also provide the advantages of fast, full loading and quick, complete dumping. Design of Amsco dippers is based on an experience of forty years in fields of power shovel application. To make a good shovel work better, specify an Amsco dipper. Available in all standard capacities, up to ten cubic yards . . . and in types as outlined below.

### AMSCO RENEWABLE LIP DIPPER

A strong, long-life dipper, designed for low overall cost. Patented Amsco construction makes it possible to replace worn lip quickly, holding down-time to a minimum. Teeth are also renewable and reversible.

### AMSCO WELDED TYPE DIPPER

Designed to meet the demand for a strong durable dipper at minimum weight . . . for fast digging and economical use of power. Built in two types: Two Part ( $1\frac{1}{2}$  to 2 yards) and Four Part (2 yards and up); sections are joined by Amsco's patented plug welding process, with all joints overlapped for rigidity. Teeth reversible for double duty . . . and replaceable.



### AMSCO DIPPERS for Special Purposes

AMSCO manufactures the famous Missabe Dippers and a wide range of cast manganese steel dippers and buckets for pull-shovels and underground work . . . as well as dippers of any design to meet any particular application.

### AMSCO PARTS

AMSCO supplies cast manganese steel dipper and shovel parts, including: teeth, renewable lips, bails, racks and pinions, sheaves, gears, crawler parts . . . as well as a complete line of welding products for hardfacing and reclamation.

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NOVEMBER, 1949

[World Mining Section—23]

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material may then, under some circumstances, serve to indicate the presence of unusual concentrations of metallic elements in the soil, and thus point to underlying metallic mineralization in the bedrock.

The techniques depending upon observation of the radioactivity of minerals containing radium, uranium and thorium are being given much publicity because of the importance of these elements in the program of utilizing atomic energy. Apparatus, such as geiger counters, are used to detect radioactive emissions, particularly gamma rays, and thus to discover the presence of radioactive minerals. It is quite possible that, as more is learned about the geological relationships of such radioactive minerals, studies of the radioactivity of rock formations may develop other lines of guidance for the economic geologist.

## Classification of Methods

The four, main geophysical methods which have been described above can be classified according to two different systems. According to one, the physical classification, the methods fall in two groups, the first depending on naturally occurring fields of force, and the second upon artificially imposed fields. Those methods requiring the creation of artificial fields are the seismic and electrical resistivity. The spontaneous polarization method, an electrical technique, is found, however, in the group dependent on natural fields of force, which includes the gravitational and magnetic procedures, as well as the radioactive and chemical methods. When employing these natural fields of force, whether they be electrical, magnetic or gravitational, the geophysicist must be satisfied with what nature provides him—he can neither change the point of application of the field nor can he vary its magnitude. The case is quite different for the seismic and

electrical resistivity methods, because the geophysicist can choose the strength of his field of force at pleasure; he can gauge it to fit the problem under investigation, and can furthermore concentrate that field of force where he desires to apply it. These methods therefore offer a greater flexibility, but also suffer from requiring more bulky apparatus than do the methods relying on the natural fields.

## Mineralogical Composition Important

The second system of classification divides the geophysical techniques according to that geological characteristic which is of principal importance to the field of force employed. Thus, the mineralogical composition of the geological bodies is the principal controlling factor in the application of the spontaneous polarization and magnetic methods, and also of the chemical and radioactive techniques. Both the mineralogical composition and density (or compaction) are the principal factors in the gravitational technique. In electrical resistivity work, compaction and porosity are usually more important than mineral composition, although the latter enters into the picture to some extent. In the seismic method, mineral composition is less important, and the controlling factors are density and elasticity, related principally to the lithological character of the formations.

What has been said above was aimed at sketching the fundamentals of the more widely applied geophysical techniques, to convey a sense of types of problems to which they are applicable, and why the particular geological circumstances must be taken into careful consideration before deciding what particular technique or techniques should be applied to derive the maximum geological information. It is often possible, and highly advantageous to utilize two or

more methods for the benefits to be gained from the multiple checks thus provided, and from the augmented data thereby obtainable.

## Quebec Titanium Will Be On the Market in 1950

Full scale production of titanium from newly developed deposits in Quebec will get under way by the autumn of 1950, according to C. D. French, provincial minister of mines. The location is 400 miles east of Quebec City in the Allard Lake region, 27 miles north of the Havre Saint Pierre region.

Railroad construction to the site was started last year and is 50 percent completed, executives of Quebec Iron and Titanium Corporation advise. This company is developing the deposit.

Ilmenite (iron and titanium) ore will be shipped up the St. Lawrence River from Havre Saint Pierre to Sorel, Quebec, where an electric furnace for the production of pig iron and steel will be built, and the titanium slag recovered as a by-product.

Canadian metallurgists have developed a cheaper and more efficient method of refining titanium than any other now being used. The use of this method is expected to make the production of titanium so inexpensive that it will compete favorably with steel for certain purposes. Titanium is about half the weight of iron, but as strong as steel.

Kennecott Copper Corporation and New Jersey Zinc Company are financing the titanium project.

## Sonora Property Leased By Nebraska Group

D. W. Budge, owner of the Mina San Juan and its extensions, located approximately seven miles southeast of Ures, Sonora, Mexico, has recently leased his holdings to a Nebraska syndicate. Twenty-two men are currently employed on the installation of a diesel plant, compressors, hoists, pumps, track and other items and increased production is expected to commence soon. Plans call for the erection of a 50-ton mill in the near future.

Although Mr. Budge has been interested in this property for some eleven years, it is only recently that he has begun seriously to develop it. Shipments of ore have been going forward from the property. The commercial elements are gold, silver, copper, lead and zinc, with an average value of something over one hundred and fifty dollars a ton at the smelter.

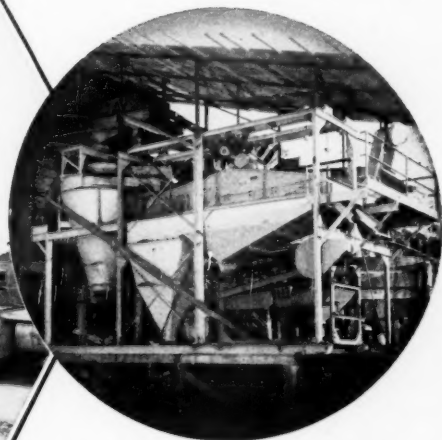
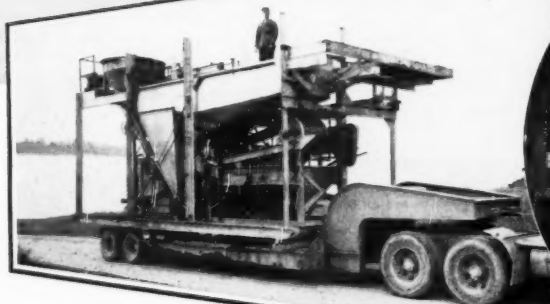
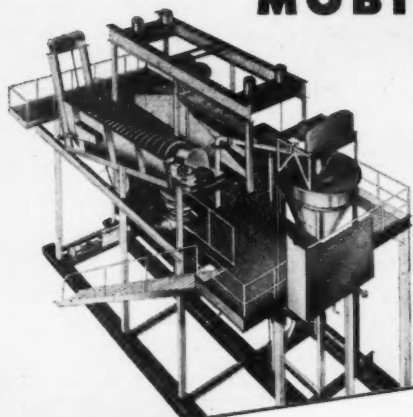
The Nebraska men interested in the property are Neville Keith, Floyd Callahan, Henry Eckels, Wayne Keith and Ben Seibener.

Fig. 9. Helpers moving spontaneous polarization equipment on a survey in Ecuador.



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# PROMINENT MEN IN INTERNATIONAL MINING

Nils E. Nilson, formerly general manager of the Associated Mining Companies, Fiji, has been appointed Chief General Manager of the Group, which comprises Emperor Gold Mining Co., Ltd., Loloma (Fiji) Gold Mines, N. L. and Dolphin Mines, Ltd. C. W. Cayzer of Western Australia becomes general manager.

D. W. Viles, vice president of the Vanadium Corporation of America, Naturita, Colorado, has charge of all mining and milling operations in the United States, South America and South Africa for the company.

Michel J. Loeb returned to Rua Costa Rica 173, Sao Paulo, Brazil, after completing his graduate work at the Colorado School of Mines.

H. H. Merritt, resident manager, Geita Gold Mining Company, Tanganyika, is in Canada on leave.

J. de la Vallee Poussin, managing director of Uruwira Minerals, Ltd., Tanganyika, has returned to the company after a trip to Belgium.

Arthur B. Sherman, director of mines and geology for the Republic of Liberia, Africa, is at Lake Success, New York, as Liberian representative to the United Nations Scientific Conference on conservation and utilization of resources. He was graduated from Montana School of Mines in 1940.

Jan H. Marsman, president of Marsman & Company, is back in Ma-



LOUIS BUCHMAN was promoted from general manager of the Utah Division of Kennecott Copper Corporation, Salt Lake City, to general manager of all western mining divisions, effective October 1. He will supervise operations

of Utah copper division, Chino mines division in New Mexico, the Nevada mining division and the Ray mines division in Arizona.

nila, Philippine Islands, after a visit in the United States.

B. G. Krishnaiah recently was graduated from the Montana School of Mines, Butte, Montana, and is now professor of metallurgy and mineral dressing at Madras University, Madras, India.

A. Mcb. Boyd resigned from Pahang Consolidated mining company to accept a position of mine manager

for Lady Claire gold properties at Tanami, Northern Territory, Australia.

Harold William Paxton is one of about 50 British engineers selected by the ECA for graduate and on-the-job study in American production methods. He has a B.Sc. and M.Sc. in metallurgy, laboratory and production work in metallurgy from Manchester University.

F. Navin is now assistant superintendent at Big Bell Mines, Ltd., Western Australia. He was formerly on the staff of Mt. Isa Mines, Ltd.

Arthur I. Perry is at Tegucigalpa, D. C., Honduras, with the Cia. Minera Agua Fria, S. A., where he is working on the reconstruction of a cyanide plant.

W. T. Brown transferred recently to Santiago, Chile, to become assistant to the president of Compania American Smelting. He had been superintendent of the American Smelting & Refining Company's Trench, Arizona, unit.

W. A. Carlson is at Lima, Peru, as superintendent of the cyanide plant treating gold ore at the Consorcio Minero del Peru.

R. W. Crosby has left the employ of Marsman and Company, Manila, Philippines, and is now on the staff of Benguet Consolidated Mining Company at Baguio.

Douglas M. Dunbar is located at 25 Broadway, New York City, and is assistant to the executive vice president of Chile Exploration Company. He had been working for the company at Chuquicamata, Chile.

Dr. Pierre Evard, civil and mining engineer with the University of Liege's Department of Economic Geology, Belgium, was a recent visitor to the United States and Canada where he studied oil and ore processing methods. He is also a geologist and geophysicist and was in this country under the direction of the Belgian government.

Henrik Steffens Habrup-Jensen, Norwegian metallurgical engineer, returned to Norway after a month's study of United States processes in the production of ferro-alloys under ECA's technical assistance program.

Torgeir Hoverstad, works manager of Porsgrunn Elektrometallurgiske A. S., at Porsgrunn, Norway, is in the United States studying electrolytic methods of producing manganese metal.

William B. MacPhee is in Peru with

the Castrovirreyna Metal Mines Company, Casilla 101, Santa Ines, Huancavelica. He had been employed by Minerals Engineering Company at Los Angeles, California, before this.

R. A. S. Mason is London manager of The Zinc Corporation Ltd., 37, Dover St., London, W. 1. He had been general manager of the Gold Exploration and Finance Company of Australia Ltd.

Dr. A. G. Pentland is now president of West Kootenay Mines Safety Association, British Columbia. He is also chief geologist for Sheep Creek Gold Mines Ltd., Vancouver.

Werner C. F. Poensgen, technical director of Christiania Spigerverk, an Oslo, Norway, steel producing firm, and Einar Gornitzka, melt shop superintendent, are in the United States to observe American methods of continuous casting of steel, rolling of rods and other steel processing.

DAVID H. FERGUSON is at Shawinigan Falls, Canada, as works manager of the Aluminum Fabricating and Smelter Plants, having been promoted from his position as assistant works manager at the Kingston, Ontario, plant of Aluminum Company of Canada.



Poensgen is a member of the Norwegian Society of Civil Engineers, the Norwegian Metallurgical Society and several United States and English associations.

Eric A. Rudd is a member of the mining and economic geology staff at the University of Adelaide, North Terrace, Adelaide, Australia, having resigned his position of chief geologist for Broken Hill Pty. Company, Melbourne.

Robert E. Tally, Jr., is in Malaya with Eastern Mining and Metals Company, Kuala Dungun, Trengganu.

E. R. Turner, superintending engineer for the Austral Malay Tin Limited, Taiping, Perak, Malaya, has been appointed to the board of directors of the company and its subsidiaries which control tin dredging properties in Malaya, Thailand and Burma.

C. E. Visel has joined the staff of Negociacion Minera, Sta. Maria de la Paz y Anexas, Matehuala, S.L.P., Mexico, as plant manager, terminating over 25 years of service with the Guggenheim and American Smelting and Refining Companies in charge of various mining units in Mexico. His last appointment with the latter was as superintendent of the Plomosas Unit of the Cia. Minera Nacional S. A. in the State of Chihuahua. Victor

Garate Valdez is general manager of the Sta. Maria company.

William Wraith Jr., is working for the Chile Exploration Company, Chuquicamata, Chile. He had been employed by the Cananea Consolidated Copper Company, Sonora, Mexico.

A. St. Clair Gordon of Wallaceburg, Ontario, Canada, has been elected to the board of directors of Chatco Steel Products Ltd.

J. A. Graham left Quemont Mining Corporation, Ltd., to become mine manager for Pioneer Gold Mines of British Columbia Ltd., Canada.

A. P. Gulland was appointed vice president and director of Mahaffy Iron Works Company Ltd., Canada, by L. V. Wright, president. Gulland will continue to carry on his duties as general manager.

Carl A. Ilgenfritz was nominated by President Truman to be chairman of the munitions board. He is an executive of the United States Steel Company and a member of the American Iron and Steel Institute, among other positions.

J. S. Peterson, vice president and general manager of Benguet Consolidated Mining Company, Philippines, is on extended business and vacation in the United States. He will return to the Philippines about the first of the year.

H. Gordon Poole, who had a year's leave of absence from his post as professor of mining engineering at the University of Washington, has returned from the American Embassy in Mexico where he was a mining-metallurgical consultant of the U. S. Bureau of Mines to the Mexican government.

L. T. Vear is now mine superintendent for Cariboo Gold Quartz Mining Company, Ltd., Wells, British Columbia. He has been with the Company for fourteen years.

Carl T. Ulrich has been named temporary chief executive officer of Kennecott Copper Company, New York, until a new president can be elected to take the place of E. T. Stannard, killed recently in an air crash. Ulrich is vice president and treasurer and president of Kennecott Sales Corporation. J. C. Kinnear, vice president, has been elected a director. Anton Gray, chief geologist, becomes a vice president.

F. P. Downey, after two years as superintendent of the Mount Isa smelter, North Queensland, Australia, has returned to his position as superintendent of the Hayden Smelter, American Smelting and Refining Company, Hayden, Arizona. M. L. Plass, superintendent in Downey's absence, is to go to Mount Isa shortly.

Gaylord Warren can be reached at Box 253, Manitou Springs, Colorado, where he has been since resigning as metallurgist for Cia. Minera Asarco, Charcas, Mexico.

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## INTERNATIONAL INDUSTRIAL POWER





**WESTERN AUSTRALIA**—Recent reports on mining activities in this state are as follows: A Queenslander, W. D. Miller, has applied for a prospecting area at Marble Bar where he claims he has found payable uranium ore. That uranium ores occur in the area has long been known, but no payable occurrences have been proved. High grade hematite discovered in the Northan-York area will permit the Wundowie charcoal-iron wood-distillation plant to process low phosphorus iron. *Central Norseman Gold Corporation* reports that a vertical drill hole, Princess Royal No. 15, has cut a well defined reef at 618' assaying 32 dwt. over 19 inches.

**VICTORIA**—Directors of *Central Victoria Dredging Company* consider that the original estimate of £385,000 to bring the Newstead and Amphitheatre dredges into production will be exceeded by about £50,000, due to rising prices of labor and commodities. The Jim Crow dredge, which Superintendent J. McGeorge thought might commence production in July, is unlikely to start digging before the middle of October and the Amphitheatre dredge is not expected to commence before April, 1950, when electric power may become available.

**MALAYA**—The Bukit Besi mine in Malaya expects to export at least 600,000 tons of iron ore, all to Japan. The ore averages 58 to 60 percent Fe. and has a low sulphur and phosphorus content. Other iron ore deposits may be opened later but the shortage of shipping limits the mine's activities.

**QUEENSLAND**—*Alluvial Gold, Ltd.*, has exercised its option over 31 million cu. yds. estimated to contain 10.5 ounces of tin oxide per yard on the Atherton Tableland, between Ravenshoe and Mount Garnett. The area was drilled by Mr. Finch, whose work was confirmed by test drilling by *Alluvial Mining Equipment, Ltd.* *Alluvial Gold* has taken an option on a silver-lead showing at Mount Barker, also.

**VICTORIA**—*Morning Star (G. M. A.) Mines N. L.* was the second largest Victorian producer of gold for 1948, with 17,028 tons of ore for 15,441 oz. of gold. Costs of milling, mining, and development had risen from 52.7 shillings a ton in 1942 to 100.1 shillings. Chairman A. H. Merrin stated that much work would probably be done on the 18, 19, and 20 levels; that the shaft might be deepened to prospect dike formation at greater depths; that a new upcast air shaft had been started from the 9 and 114 levels. Arrangements were being made to prospect the Loch Fyne mine by diamond drilling during the summer. A recent *Morning Star* report recorded the advancement of the south intermediate

drive on the Stirling floor from 47' to 104' in high grade ore 12 in. wide.

**QUEENSLAND**—Better prices for copper enable *Mount Morgan, Ltd.*, to pay its first dividend since 1942. Gold output was up to 58,663 ounces; copper output was up to 3,523 tons. Net profit was £128,494.

**NORTHERN TERRITORY**—*Coolgardie Prospecting Company* has disposed of the last option held on the Coolgardie (Western Australia) field, and transferred to Tennant Creek. Options have been taken over *The Fassifern* and *The Jubilee Extended*.

**AUSTRALIA**—Import licenses of a total value of £1,250,000 were issued for Japanese steel products for the period from April 1 to July 29. The Prime Minister, J. B. Chifley, stated that any amount of steel could be secured from the United States, but there were no dollars to pay for it. The British Government had guaranteed 8,000 tons of steel this year, to be increased to 25,000 tons later. Steel may possibly be freed from import duty.

**INDONESIA**—Bauxite deposits in the Indies are concentrated mainly on the Bintan island where five groups of deposits estimated at about 10 million tons exist. Ore content is usually between 55 and 60 percent alumina and two to six percent silica, and production is now up to 300,000 tons annually. In Borneo, several bauxite deposits have been found in the Sambas region and in Sarawak where the *British Aluminum Company* may someday build an aluminum processing plant.

**NORTHERN TERRITORY**—Bauxite deposits found in the Coburg Peninsula, about 100 miles northeast of Darwin, have been the subject of investigation by the Commonwealth Bureau of Mineral Resources.

**NEW CALEDONIA**—*Ste. Calédonienne du Chrome*, a combination of the five leading chrome producers in the country reported that chrome production rose nearly 25,000 tons higher in 1948 than in 1947 to a total of 75,071 tons. The United States bought three-fourths of this output.

**NEW GUINEA**—*Cuthbert's Misima Gold Mine, Ltd., N. L.* has been advised by technical adviser L. A. Westcott to cease drilling and concentrate on production as drilling results were disappointing and there is still a shortage of labor. Recent yield: 314 tons for 49 ounces of gold, and 198 ounces of silver. Heavy rain caused loss of 10½ days milling; foreign matter in precipitation boxes affected recovery and 28 ounces of gold remained locked in circulating solution. Manager is H. D. Kelly.

**NEW ZEALAND**—At Te Aroha, 100 miles south of Auckland, having survived fourteen objections by separate public bodies, preparations



## GOING TO THE CLEANERS

Native laborer hosing out an intermittent slimes collector with cyanide solution in the reduction plant of the Geduld Proprietary Mines, Ltd., at Springs, Transvaal. This company's reduction plant is made up of a 150-stamp mill, 18 tube mills, cyanide plant and slimes plant. In 1948 approximately 1,200,000 tons of ore were treated, from which was recovered an estimated £2,000,000 in gold.



## INTERNATIONAL

have been completed to open the first lead mine in New Zealand. Rich lead-gold-silver-zinc-copper ores are said to be present. Technical and financial backing is believed to be coming from Australia and Great Britain.

**INDONESIA**—Development of nickel and aluminum plans in Celebes depends largely now on the economic and political situation of the country. However, exploration continues to reveal good nickel ore on the property of N. V. Mijnbouw Maatschappij Celebes and will be carried on in spite of the obstacles above, and some exportation to foreign countries is going on.

**TASMANIA**—J. Coldham, consulting engineer for *Tasmanian Mines N. L.*, has reported favorably on the company's areas at Pieman River. There are strong indications of metal at all horizons and for great depths. The capital cost of bringing in water will be high, but the cost of working should be very low. More intensive sampling is being carried out.

**VICTORIA**—*North Broken Hill Ltd.* has applied for a gold mining lease at Maldon. Initial expenditure is estimated at £5,000 and the venture will be known as *Maldon Exploration*. The application follows many months of geophysical exploration. Rich gold ore was mined in the much folded dike-traversed schists and hornfels of the Maldon district.

**NORTHERN TERRITORY**—Prospectus of an issue of 600,000 shares has been lodged by *Peko (Tennant Creek) Gold Mines N. L.* Vendor is J. S. Higgins. The company proposes to work leases at Tennant Creek. Gross value of ore proved on the leases to date, the company states, is £170,000. In the same area *Tennant Creek Mining Company* has taken options over the *Arizona* and *South-east Star East* leases.

**TASMANIA**—Profit of *Aberfoyle Tin N. L.* dropped by £26,464 to £50,926 for the financial year ended June 30, 1949. The sum of £14,000 was appropriated for a new plant and development. New levels Nos. 9 and 10 will be opened as bores have located extensions to the main orebodies. In addition, new tin and wolfram orebodies have been located west of the main bodies.

**WESTERN AUSTRALIA**—*Central Norseman Gold Corporation* has completed a new shaft to the No. 25 level. Ore hauling through this shaft is expected to commence this month. A drill hole in the hanging wall of the north end of No. 7 level drive in the *Princess Royal* has intersected at eight feet from the drive, 367" of ore assaying 27 dwt. per ton.

**QUEENSLAND**—The *Broken Hill Proprietary Company* has contracted to purchase 2,000 tons of manganese ore from Imbil in the Mary Valley.

**NORTHERN TERRITORY**—Recent reports on activities in this state include the news that a new company, *Territory Tin and Tantalite N. L.*, has been granted a twelve month option over leases held by *Tin and Tantalite Prospecting Company* to test the properties further. According to Dr. Raggatt, of the Commonwealth Bureau of Mineral Resources, roads proposed for the development of the meat industry in Northern Territory should benefit tin and tantalite producers. At *Falcon Gold Mines N. L.* reports advise good ore in a rise 22' above the 160' level. Of 42 tons hoisted from the mine, estimates indicate 45 dwt. gold to the ton is contained.

**QUEENSLAND**—A reinforced concrete chimney, over 328' high with an inside diameter of eight feet six inches, will be built for *Mt. Isa Mines, Ltd.*, on its property at Mt. Isa, by the *Rust Engineering Co.*, Pittsburgh, Pennsylvania, U. S. A. Designed to serve smelter plant operations, the chimney will have a full height acid proof brick lining laid in acid proof mortar, with the space between lining and concrete filled with fibreglas.

**MALAYA**—Increased dredging operations are underway by two Malayan companies: *Kamunting*

*Pangnga (Siam)* and *Kuala Kampar Tin Fields*, both of which put their No. 2 dredges into production.



LATIN AMERICA

**MEXICO**—Another bleak picture of Mexican mining was painted by the *Banco Nacional de Mexico, S. A.*, *Isabel la Catolica, No. 44, Mexico, D. F.*, the country's largest private bank, in its latest survey of the Mexican economic situation. The Bank found mining wondering if it wouldn't be better to suspend operations until better times because despite the 8.65-peso-per dollar rate allowing more pesos from exports, profits are too small and sales are diminishing. According to the Bank, mining's big problem is ascertaining whether or not the volume of orders for Mexican metals and minerals will allow mines now operating to continue working.

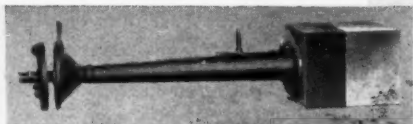
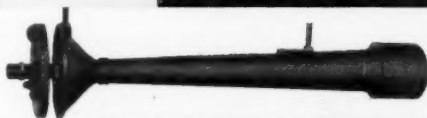
**PERU**—A recent decree issued by the Peruvian government grants 100 percent dollar certificates for exports. The previous arrangement was that

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45 percent of the proceeds of exports were required by law to be exchanged for Peruvian soles at the official rate. Mining companies are expected to benefit from the new decree as it will allow greater latitude for development and plant expansion.

**MEXICO**—Exports of manganese ore from the Republic were up over a third as compared with 1947, the figures being approximately 57,500 tons in 1948 and 42,000 tons in 1947. Nearly all of the ore was shipped from the Lucifer mine in Baja California.

**CHILE**—The Miners' Credit Bank is said to have received a proposal from the United States for Chile's entire manganese production during the next five years. The price would be at the rate on the market the day of delivery. About 70,000 tons of manganese is produced by Chile per year, but the Bank is studying the possibilities of installation of five processing plants with a combined output of 250,000 tons a year. The Bureau of Critical Strategic Materials at Washington, D. C., is reported to have approached the Export-Import Bank in regard to arranging credit for the purchase of equipment to assist increased manganese production in Chile.

**VENEZUELA**—Exports of iron ore are expected to go out this winter from *Iron Mines Company of Venezuela's* Palua installations. Palua, a port on the Orinoco River, is the port to which iron ore from *El Pao* mines goes for loading on ships to the United States, and a complete rebuilding of the dock facilities has been underway for some time.

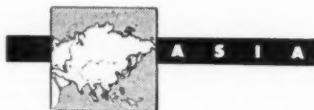
**BOLIVIA**—Shipments of tin ore have decreased with 2,386 tons sent in July compared with 4,065 in June. So far this year approximately 19,000 tons has been shipped, some 2,000 tons under last year's total at the same time. The *Patino Mines* produced the largest total with *Hochschild* a close second.

**MEXICO**—Work has resumed at the *Rincon del Pedregal* and *Nueva Esperanza* mines, important silver-lead properties, at Temascaltepec, State of Mexico, under the direction of a new company that Manuel del Castillo, Temascaltepec, heads. The company is capitalized at 500,000 pesos (\$58,000).

**MEXICO**—So depressed is mining in Guanajuato that a delegation composed of managers of mining companies and representatives of medium and small scale miners, chambers of commerce and the Rotary and Lions clubs have been organized to interview President Miguel Aleman in Mexico, D. F., when he sets the date, and state the situation to him. President Aleman recently turned over to the ministry of finance for examination the memorandum that Henry Herbert and Ing. Severiano Espinosa submitted of the sorry plight of tungsten mines they operate near Guanajuato City. High taxes and the additional 15 percent ad valorem levy on mining exports were cited as the chief cause of Guanajuato's mining troubles.

**BRAZIL**—A sum of about \$17,000,000 is to be advanced to the *Cia. Siderurgica Nacional* for the second stage of development of its plant at *Volta Redonda*. The U. S. Export-

Import Bank is arranging the finances. The aim of the company is to double production to a total of 700,000 tons of steel per year at a price somewhat under that of foreign steel, thus assuming a dominant market position. General Silvio Rauline de Oliveira, director of the company, says that the proposed 700,000 tons could be easily consumed on the home market.



**CHINA**—*Taiwan Aluminum Corporation* has reported the discovery of a bauxite deposit on Chinnmen Island off the coast. The last known deposit found in China was the one at Crangpu in 1946.

**CEYLON**—Work has started at the *Bogala* graphite mines which were bought some months ago by the *Bogala Corporation* for £1,700,000. Lord Brabazon, Lord Sempill and John J. Denny travelled from England to Ceylon to be at the site when production began. R. H. Skelton, consulting engineer, has been at the mines for some time.

**TURKEY**—*Sakir Yorulmaz*, Istanbul, which has had chrome and manganese deposits under development, is said to be seeking United States aid in order to continue the development. One of the chrome deposits is reported to be able to produce 60,000 tons of ore annually. The company said it would be willing to make arrangements with any individual or firm interested in making an investment.

**INDIA**—Steel production capacity in India is only 1,200,000 tons at present and the Government of India, concerned over the economic development of the country to which the steel industry contributes materially, is studying plans for additional plants. These would add 1,000,000 tons a year to present output. The Government is also giving as much aid as possible to the larger steel producing companies in the country to increase their capacity. Among firms thus affected are the *Steel Corporation of Bengal*, *Mysore Iron and Steel Works* and *Tata Iron and Steel Company*. Estimates of iron ore reserves in Orissa and Singhbhum districts at present reach 8,000,000 tons for open pit deposits, and the Central Provinces, Salen, Mysore and Bastar State also contain large tonnages.

**JAPAN**—Through its existing import-export contracts, Japan recently received 12,000 tons of pig iron from Sweden, the first shipment since the war. Meanwhile the *Yawata* steel



### APATITE TO THE FORE IN BRAZIL

The apatite plant of the *Serrana S. A. de Mineracao* at Ipanema, Sao Paulo, Brazil, is completely modern and capable of producing from 10,000 to 12,000 tons of concentrates annually. Plans are in the making to step up production to 25,000 tons of concentrates in the immediate future and to 60,000 tons within three years. Proved reserves are more than ample for the operation, as the company controls 250 hectares of mineral-bearing land and exploration thus far has proved approximately 8,600,000 tons of apatite-bearing ore in the district.

## INTERNATIONAL

plant of the *Japan Steel and Iron Manufacturing Company* and *Kokura Steel Company* shipped a combined total of 4,000 tons of steel bars to Australia.

**PAKISTAN**—Numerous geological surveys are being conducted in Pakistan to determine and considerably increase the country's resources of oil, power and minerals. A chemical industry is to be built up as a result of discovered deposits of gypsum, chromite, antimony, nitrates and potash, copper, lead, salt and sulphur. At least eight or ten power projects are being executed, providing for either complete installation or an increase in facilities.

**INDIA**—In the Trichinopoly district a deposit of celestite has been discovered which is said to contain 500,000 to 1,000,000 tons, lying 100' from the surface. This mineral has not, as yet, been put to use in Indian industry.

**INDIA**—The Government has cancelled Open General License 15 and issued OGL 16 which has closer control over imports. Minor items of machinery and machinery spares, electromedical apparatus and books remain on the new list as goods needing no import license. All other items will now need clearance, however. The decision to change the rules was made because of the devaluation of the pound.



### EUROPE

**CZECHOSLOVAKIA**—A Daily Worker reporter returning from the uranium mining area of Jachimov (Joachimsthal) and the Erzegebirge reports that he found no forced labor at the mines at Joachimsthal, Schneeberg and Annaberg. The miners employed are free and he found that they work under normal conditions as at other mines of that country.

**POLAND**—Being the main zinc supplying country for Eastern European countries, Polish zinc production is not affected by the zinc price drop on the world market as trade agreements have fixed prices and contingents between Poland and the countries concerned. There are no stockpiles and there is a certain shortage of zinc supplies in some Eastern European countries. Polish zinc production shows slight but constant increase, partly through the effect of the economic plan but mainly owing to the employment of more miners at the Silesian mines.

**ROMANIA**—Enlarging of the cyanide mill of the *Petrosani* gold mine in Nagybanja, Transsylvania, is said to be progressing according to plan.

Property development was done during the war under Hungarian occupation, and more equipment was recently obtained so that capacity of the mines will soon be trebled.

**GERMANY**—*Leichtmetallwerk Rackwitz* near Leipzig, which so far chiefly produced aluminum and magnesium castings, has begun to erect plants for the production of aluminum and copper foils as well as a rolling mill for iron sheets, which are to commence operation towards the end of 1950.

**AUSTRIA**—For the present, the Austria aluminum industry is a seasonal one, with production ceasing during the winter due to a shortage of electricity from the hydro-electric plants. The season is from March to September and capacity of the aluminum reduction plants is thus utilized only six months a year. With completion of an enlarged new plan for producing hydro-electric power in the Alps, the pig aluminum output is to be doubled and continuous aluminum production will be maintained during the entire year so that annual output will rise over 60,000 tons. Alumina for the reduction plants will be supplied from the surplus capacity of the



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## INTERNATIONAL

German alumina factories in the Western sector.

**ITALY**—Signor Vanoni, Italian Minister of Finance, in the course of a speech delivered at the National Committee of the Christian Democratic party, has confirmed that the Italian Government intends to monopolize mining researches including those of gas and oil on the Italian territory excluding the participation of both American and British mining concerns.

**AUSTRIA**—Austrian mining circles show much interest in the graphite and antimony deposits located in the Soviet sector, soon to become part of united Austria, as evacuation of Austrian territory by the four occupying powers is expected by the end of this year.

**BULGARIA**—In the neighborhood of the rich copper deposits of Plakalnitza, Panagyurishte and the Burgas area, intensive exploration reportedly is being done by Russian economic geologists intending to develop copper deposits adjacent to working mines. Exploration of other areas of the Balkan Mountains is also being considered. Opening new copper mines is planned in the near future, and mining machinery is to be sent by Russian and Hungarian manufacturers. Present copper output of the Plakalnitza and Panagyurishte mines is not disclosed but is said to be considerably over the wartime level. Copper concentrates are sent to Russian reduction plants. Before the war copper output of the mines mentioned above amounted to an annual rate of 10,000 tons.

**GERMANY**—Sachsen-Anhalt is the first boundary province of the Eastern zone to try to collect non-ferrous scrap metals, especially scrap lead, brass, copper and tin from private sources. Window panels and textile goods are being offered in exchange.

**ROMANIA**—The provisions of the One Year Plan provide for an increase in coal and iron ore production of 24% pig iron 35%, open hearth

steel 16% and rolled products 30%. To do this two more open hearth furnaces will be built and 15 existing furnaces will be rebuilt. *Reschitza Works* coking plant will be enlarged and another plant installed in the Jiu Valley.

**DENMARK**—Due partly to reported orders from Japan and Germany, exports of cryolite from Denmark may top 20,000 tons this year. This tonnage is the highest in 10 years.

**GREECE**—Renewed operations will begin soon at the *Seriphos* hematite mines. The mines which contain a high quality of ore are owned by a French concern.



### AFRICA

**SOUTH AFRICA**—The *Jagersfontein* diamond mine in the Orange Free State, which has been idle for 16 years, has been reopened. The mine belongs to the *New Jagersfontein Company* and is leased to the *De Beers* group and operated by it. Mining and washing operations were suspended in 1932. Washing of blue ground from the surface was started again in July 1936 and finished in early 1937. The *De Beers* lease expires next year but will probably then be renewed for a further ten years.

**RHODESIA**—The substantially increased profits of the *Mufulira Mine* is a sign of the increasing prosperity of the low cost copper producers of Northern Rhodesia, for whom a huge expansion program is planned over the next few years. The operating profit for the year to June 30, 1949, was £4,802,500 compared with £3,227,581 in 1948, which itself was a record. Out of its profits, the company is building an electrolytic copper refinery which will be the means of saving a substantial sum of dollars at present spent in having the copper treated in America.

**SOUTH AFRICA**—The "Corner House" group, (*Central Mining-Rand Mines*) is forming a separate company to take over its interests in the rich new mines of the Orange Free State. The company will be called *Central Mining Free State Areas* and have a capital of £3,000,000. The company's most promising interest is in the Free State Gold Areas which it virtually controls and where several months ago a phenomenal strike of 56,000 inch-pennyweight was made at Farm Erfdeel. The group also has substantial interest in the Farm Harmony area which, together with the Anglo-Transvaal group, it is expected to float off as a separate company in the near future. Mining circles in London expect the increasing interest of big financial companies in the relatively undeveloped mines of the Orange Free State to lead to greatly increased exploration activity and an acceleration of the preliminary stages of development.

**FRENCH MOROCCO**—Annual production from the 39 foundries now existing in Morocco is 5,400 tons of iron castings, 400 tons of steel castings, 450 tons of bronze products and 180 tons of aluminum and 70 tons of white alloys. If enough electric power and raw materials can be found, this production could be doubled without satisfying demands completely, and expansion projects are thus underway.

**TANGANYIKA TERRITORY**—Reports have been received that *Central Mineral Exploration, Ltd.*, of Johannesburg, has an exclusive prospecting license over 511 sq. mi. in the Mlala district. In the western section of the territory, the branch railway line to the *Mpanda* lead mine will be about six months late in reaching the mine.

**SOUTH AFRICA**—An ammonia and nitrate factory will be built at a cost of £2,000,000 by the *African Explosives and Chemical Industries* at Modderfontein. The plant will occupy a 30-acre site and is expected to be completed by 1952. At present ammonium nitrate and fertilizers have to be imported but this plant should be able to cope with all South Africa's needs and provide exports to Rhodesia and West Africa as well.

**LIBERIA**—A railway is to be constructed from the Liberian iron mines to the port of Monrovia for shipments of over 1,000,000 tons of iron ore to go out to the *Republic Steel Corporation* plants in the United States. Arrangements for the shipments are said to have been completed between the participating parties.

**SOUTHERN RHODESIA**—About 7 miles northeast of Beit Bridge two blocks of claims have been filed on magnesite deposits discovered by Mrs. M. S. Page. The surveys made so far indicate that the value of the



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## INTERNATIONAL

deposits are nearly comparable to those in the Barberton district in the Transvaal.



NORTH AMERICA

**CANADA**—Discovery of uranium deposits throughout the Canadian provinces continues at a very fast pace, with new reports popping up every week. In British Columbia the first company formed to prospect for uranium is *Western Uranium Cobalt Mines, Ltd.* An advance crew is now working this company's property, known as the *Victoria* group, near Hazelton. President of the company is Elmer Johnston, manager is William F. McGowan, directors are Ward M. Lister, Walter Hammond, R. E. Walker, all of Vancouver. An adjoining claim, known as the *Homestake*, is being worked by a Hazelton syndicate, comprising P. H. Linzey, T. D. Christie and George Royles. Gold and silver were once produced here, but a Geiger counter disclosed the presence of uranium in the tailings. Ernest B. Johnson, who gained considerable local fame for his discovery of uranium in the Bridge River district more than a year ago, is now working on claims in the Salmo area of the Kootenay district, B. C. He reports there is a possibility of building a refinery in the area. In Saskatchewan in the Lake Athabasca area, two companies particularly are prospecting uranium claims. *Murmack Lake Athabasca Mines* trenched a long fracture in a diabase dike and got high Geiger readings. G. R. McLaren, consulting engineer, says several other dikes are proving worthy. *Athona Mines (1937), Ltd.*, has three programs under way itself and another in conjunction with *American Yellowknife Mines* and *Goldcrest Mines*. Their claims are both on and near the Charlot River, and two of the deposits found have workable uranium content. In Ontario *Alona Uranium Mines, Ltd.*, has got high Geiger readings from ground in the central and southwestern portions of its property near Sault Sainte Marie. Near North Bay, Fred Jowsey and his wife found uranium and columbite in several old feldspar pits and have staked about 600 acres of ground in the vicinity. The assays are so promising on samples they have brought in that a rush of prospectors have headed for the area.

**SASKATCHEWAN** — *Nicholson Mines, Limited*, announced that recent work on the northerly extension of No. 1 zone has disclosed exceptionally good results, two grab samples taken from the zone returning 5.5 percent and 2.7 percent uranium, re-

spectively. The zone, discovered last year by Geiger work, was bulldozed off this season and exceptionally strong reactions were secured. Seventeen channel samples are now out for assay. This is the most important development at the property at this time. Good progress is being made in shaft work on No. 4 zone. The southerly extension of this zone, which has recently shown unusually good results, will receive closer attention shortly in the expanded exploration program.

**GREENLAND** — An expedition is in East Greenland near King Oscar's Fjord examining large lead deposits found by Dr. Lauge Koch, Danish scientist, last year. The *Boliden Company*, a leading mining and prospecting company from Sweden sent a number of its ablest men on the expedition, which is being led by Dr. Josef Eklund of that government's geological survey. One lead deposit found contains an estimated million tons of commercially valuable ore.

**SASKATCHEWAN** — A large deposit of massive pitchblende has been found in the Black Lake area, 100 miles east of Goldfields, by two prospectors, William Sharpe and Austin Johnston. The strike was made on unstaked ground near the Eldorado Mining and Refining Company's property. Samples are being analyzed at Ottawa and upon their value rests the decision of the men to develop the claim.

**BRITISH COLUMBIA** — The new Reeves-McDonald 1,000-ton concentrating plant near Salmo is now operating with three shifts, and about 600 tons of lead zinc ore is being processed daily, according to Jens Jensen, vice president. Installation of a second ball mill which will double mill capacity is underway as well as construction of permanent camp buildings.

**NEVADA** — A Nevada corporation

has formed to build a 100-150 ton custom mill in the Tonopah area, and bulldozing of the site selected has begun already. As miners in the Tonopah area have had to send ore to McGill, Salt Lake City or Dayton, freight charges have made the handling of ore worth \$25 to \$30 a ton unprofitable to mill. Thus the new mill is a boon to mines in Tonopah Divide, Nivloc, Mina, Liberty, Luning, Manhattan and vicinity. The mill will be able to handle gold and silver and certain lead and copper ores.

**ONTARIO** — *Camray Mines Ltd.* exposed pitchblende ore in a three to four inch wide vein by slashing the wall rock above the shaft collar at its property near Sault Ste. Marie. A second vein, half an inch wide, and several minor fractures were also found. A third zone, which lies 800' from the main road through the property, shows high Geiger readings over a length of 300'. Overburden here is three to five feet deep. One cross trench has been completed across the zone and stripping of the entire length is underway. An inclined two-compartment shaft is being sunk to a vertical depth of 120' with the encountering of similar veinlets anticipated as sinking progresses.

**BRITISH COLUMBIA** — The new slag fuming furnace unit, built by *Consolidated Mining and Smelting Company of Canada, Ltd.*, at Trail for \$1,000,000 is in operation. The unit which handles lead blast furnace slag at a rate of 500 tons a day and augments production from the old furnace built 20 years ago, is designed to recover metal values from certain intermediate products. Cominco meanwhile reports that preliminary diamond drilling on the 2,300' level at its Yellowknife operations indicate the possibility of a new large orebody.

**ALASKA** — *Aluminum Company of America* is considering the ex-

Continued on Page 61

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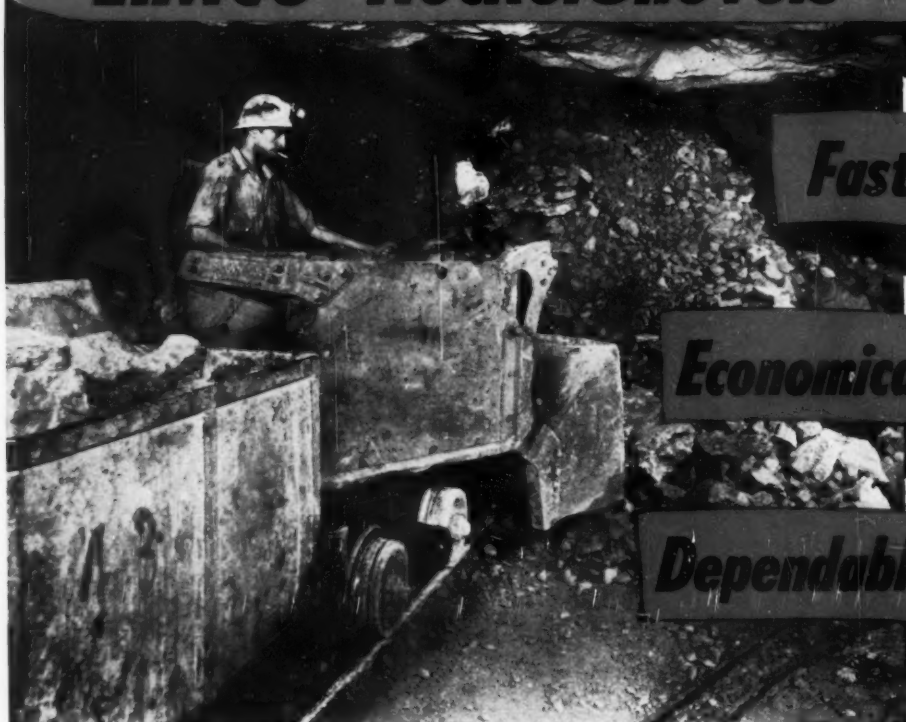
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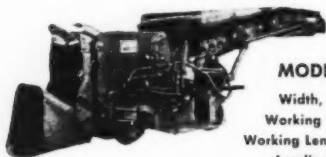
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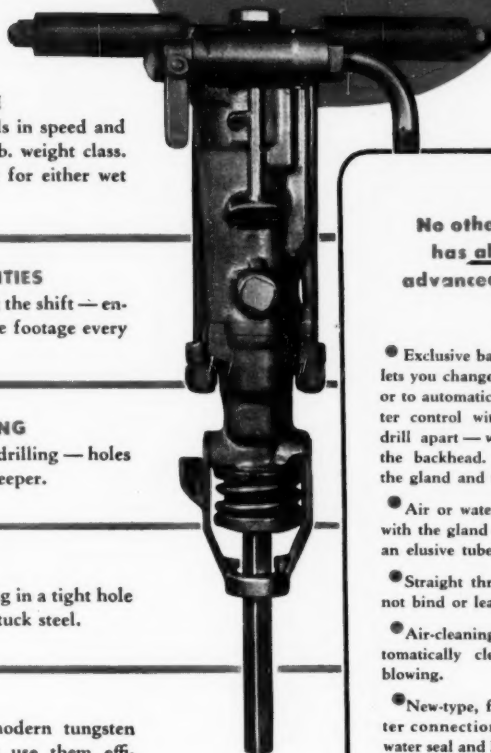
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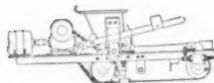


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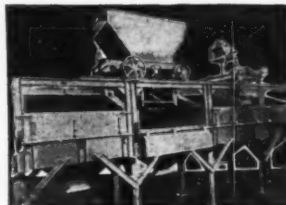
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## North America

Continued from Page 57

penditure of \$300,000,000 in the Skagway area for hydroelectric power installations, according to a report from Juneau.

**CALIFORNIA**—A possible large uranium field has been located near Bridgeport, California, by Warren Loose, who said he got Geiger reactions from an area about 1,000' long and found the radioactive ore lying about six to eight feet below the surface. The State Bureau of Mines and the atomic energy field office in Reno, Nevada, are studying samples now to determine the degree of uranium or thorium contained in them.

**BRITISH COLUMBIA**—Suction dredge of the recently organized *Tulameen Dredging Company* is being assembled at Princeton, B.C., and will be operated on six miles of placer leases extending along the Tulameen river. Directors of the company are: Thomas M. Gerety, Portland, Oregon, president; Benjamin Richardson, secretary-treasurer; James W. Boothe, Raymond Moresco, Verne J. Shangle and Arthur M. Whiteside, directors. Registered office is in the Standard Building, Vancouver.

**SASKATCHEWAN**—Twelve uranium bearing zones assaying from .30 percent to 5.60 percent and in some cases traced for 360' were discovered by *Greenlee Mines Ltd.* at Goldfields, Lake Athabasca. Showings appear at intervals over a 3,600' area, and trenching and stripping is being conducted as well as further exploration of the discoveries.

**ARIZONA**—The *Golden Crown Mining Company*, Crown King, Arizona, has started development work at its *Cougar* mine, a group of three gold-silver-lead-zinc claims. The shaft is down 120' and a station is being cut. When that work is completed a crosscut will be driven to the vein. Silas P. Silverman is president and manager of the company and H. B. Salisbury, superintendent.

**BRITISH COLUMBIA**—The *Jackson* mine, source of important lead and zinc production in the early days in British Columbia, has been acquired on option by Edward G. Brown of Vancouver, president of *Oroville Mining Company*, which holds extensive placer ground on Mc-Dame Creek in the Cassiar district. Silver-lead ore from the Jackson property will probably be treated at Whitewater mill near Retallack, B.C.

**QUEBEC**—In the Buckingham area, a large phosphate operation is underway by *Quebec Smelting and Refining Corporation* which hopes to supply 30 to 40 percent of Canada's phosphate needs eventually. So far 26 diamond drill holes have been put down returning assays averaging

35 percent. A pilot mill is contemplated with a 25-ton capacity, and sometime in the future the company hopes to produce 1,000 tons per day after having proved 1,000,000 tons of phosphate rock. Substantial dumps exist now for initial production. Adit entrance is planned to the orebody.

**ONTARIO**—This month the 50-ton mill just completed by *Silver-Miller Mines Ltd.* at its Cobalt property will go into operation. The No. 4 shaft, sunk to a depth of 500', was connected to the No. 1 shaft, and silver ore of good value is being mined.

**BRITISH COLUMBIA**—A two foot vein of silver galena was discovered in the *Violamac* mine (once the *Victor* mine) by George A. MacMillan. Reports say the ore is running around \$200 per ton. Both *Silver Ridge Mining Company* and *Kelowna Exploration Company*, which have claims adjoining the *Violamac*, are exploring for the ore also. The companies operate in the Slocan area.

**QUEBEC**—*Noranda Mines, Ltd.*, recently added 32 claims to its holdings by optioning the No. 1 and No. 2 groups formerly owned by *O'Leary Malartic Mines, Ltd.*, on Antoinette Lake, district of Chibougamau. A crew is already working the new property for zinc-lead-gold-silver values known to exist, and a new zinc showing has been uncovered about 550' from present workings.

**IDAHO**—Diamond drilling pro-

gresses at *Caledonia Silver-Lead Mining Company's* crosscut on the 500' level with drill holes running east, south and west. The company is trying to locate a possible extension of the rich *Caledonia* vein system. The crosscut is new and crosses the *Alhambra* fault beyond which several stringers were cut. Hard ground has been encountered now, enabling the drills to get satisfactory core. The mine is near Kellogg, Idaho.

**BRITISH COLUMBIA**—About \$70,000 is being spent by *Yale Lead and Zinc Mines Ltd.* for further exploration and development of its property at Ainsworth near Kootenay Lake. In time, 25,000' of diamond drilling will be done on the *Highlander* vein and the *Krac* property. Diamond drilling is also planned at the *Portland Canal* gold property owned by the company.

**ONTARIO**—*Steep Rock Iron Mines, Ltd.*, Steep Rock Lake, has obtained \$8,000,000 additional capital for its expansion program which will raise production from the "A" and "B" orebodies (known, respectively, as the *Hogarth* and *Errington* mines) from 1,200,000 to 4,000,000 tons annually. The expansion, scheduled to start in 1952, will be completed in two years. An estimated 71,000,000 tons of ore is blocked out above the 575' level in the *Hogarth* and the 450' in the *Errington*, according to President D. M. Hogarth.



Photo courtesy of Bendigo Advertiser

## YELLOWKNIFE HAS PROMISING FUTURE

Above is an aerial view of *Giant Yellowknife Gold Mines Ltd.*, Great Slave Lake, Northwest Territories, Canada, showing the No. 2 shaft and treatment plant in the background. The gold-bearing shear zones on the property are considered part of a major system which includes the *Con*, *Negus*, *Akaitcho* and *Crestaurum* zones, and which extends an unknown distance in the Yellowknife greenstone belt. These zones have been traced by diamond drilling over a distance of more than two miles so far, and, although there are sections of barren shear zone, the work done to date has shown a multiplicity of ore shoots at intervals along the length of the structure. Over 3,000,000 tons averaging 0.41 oz. ton (uncut grade) was estimated from the results of surface drilling. The underground development has been up to expectations and at No. 2 shaft the grade of ore so far mined has exceeded the estimates. Operators believe that the property can ultimately sustain a large-scale operation of many years' duration.



## NEW METHODS — NEW EQUIPMENT

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**PREVENTION AND REDUCTION OF CAVITATION AND PITTING IN HYDRAULIC TURBINES:** Subject of a new 12-page bulletin, number 02B7226, released by Allis-Chalmers Manufacturing Company.

**PNEUMATIC CONCRETE PLACERS:** Worthington Pump and Machinery Company's bulletin R-105C describes their pneumatic concrete placers which are being produced again, after being suspended during the war years.

**PIPELINE PROJECTS:** Caterpillar's new 12-page booklet, "It's Caterpillar All the Way," pictorially presents clearing, ditching, stringing, staking, wrapping, laying-in, and backfilling operations on pipeline projects.

**HIGH SPEED DIESEL ENGINES:** Write for full details and specifications of Cummins Diesel engine with a maximum rated horsepower of 110 at 1,800 rpm which is now in production.

**SAFETY LAMP:** The Mine Safety Appliances Wolf Junior flame safety lamp, lighter and smaller than standard models is introduced in a new bulletin, Number BJ-4.

**DIRECT CURRENT MOTORS:** Latest construction features of Allis-Chalmers large direct-current motors, used especially by those having applications requiring wide speed variation and fine speed control, are discussed in a new 40-page bulletin.

**PUMPS:** Catalog Number 1550 of the De Laval Steam Turbine Company contains complete description of both two and four stage units with rating and dimension tables. It describes pumps in pressures to 1,000 psi and are particularly suitable for boiler feed, refinery, pipeline, mine drainage, and general hydraulic service.

*Copies of all bulletins may be obtained by writing MINING WORLD, 121 Second St., San Francisco 5, Calif. Please refer to bulletin number and issue in which it appeared.*

**ORE TEST:** Write to: Denver Equipment Company, 1404 Seventeenth St., Denver 17, Colorado, for complete information Denver Ore Test.

**AUTOMATIC COUPLERS:** Write for complete details of Willison automatic couplers.

**INDUSTRIAL PUMPS:** Bulletin 547-IP contains data on all types of American Manganese Steel's industrial pumps.

**CRUSHER - CLASSIFIER - GRINDER - AMALGAMATOR:** This four-in-one machine is Gibson 15-ton combination prospector which is described fully in Bulletin H.

**SCRAPER:** Write for details of Cate Equipment Company's 36" scraper.

**SAFETY HATS:** Complete description and details of the new Bullard "hard boiled hat" will be given upon request.

**STRIP-MINING:** Caterpillar Tractor Company's free booklet on "Three Steps of Strip Mining" is now available.

**STEEL:** "Engineering Properties and Applications of Ni-Hard" and "Buyers Guide for Ni-Hard Castings," two booklets published by International Nickel Company, will be mailed upon request.

**USED MACHINERY:** Bulletin No. 10 contains complete details of rebuilt machinery available from the Florence Machinery Company.

**PAVING BREAKERS AND SHEETING DRIVERS:** Bulletin H-1200-B40 covers Worthington Pump and Machinery Company's paving breakers and sheeting drivers.

**PUMPING POWER:** Caterpillar Tractor Company's booklet 12484 contains general information on how various jobs in the fields of mining, irrigation, dredging, and water supply have been solved in the installation of Diesel power.

**BLASTER'S HANDBOOK:** The 12th edition of the "Blaster's Handbook," published by E. I. DuPont de Nemours Company, is now available. Copies are \$1.50 each and mailed postpaid.

**RUGGLES-COLES DRYERS:** Hardinge Company's new bulletin number 16-D-31 is a catalog on rotary dryers, kilns and coolers. Gives theory of drying and advises the best equipment for different applications.

**HYDRO DRILL JIBS:** A new 12-page bulletin on "Joy Hydro Drill Jibs for Low Cost, Mechanized Drilling" has been released by the Joy Manufacturing Company.

**BULLDOZERS:** A variety of applications for bulldozers, ranging from pushing 4-ton boulders out of the way to feeding crude salt to conveyors is presented in a new booklet, "What Caterpillar Bulldozers Can Do for You," published by Caterpillar Tractor Company.

**BALL AND ROLLER BEARINGS:** Link-Belt Company announces the completion of an entirely new 112-page detailed catalog and engineering data book covering the company's complete line of ball and roller bearings, and that copies of this new Book No. 2550 are now available upon request.

**WELDING RODS AND ELECTRODES:** A new "Selector and Comparison Chart of Hardfacing Rods and Electrodes" has been released by the American Manganese Steel Division of American Brake Shoe Company. Ask for bulletin No. CC-3.

**GAS FUME RESPIRATOR:** The new M.S.A. Gas-Fume Respirator, for protection against mists, dusts, fumes, organic vapors and acid gases which occur in burning, spraying, pouring, welding, cutting and other industrial operations, is fully described in an illustrated bulletin now made available by Mine Safety Appliances Company. Bulletin No. CR-25.

**PORTABLE CRUSHING UNIT:** Denver Equipment Company announces their new portable crushing unit which consists of jaw crusher mounted on 4-wheeled truck equipped with hydraulic or mechanical brakes. Write: Denver Equip-

ment Company, 1404 17th Street, Denver 17, Colorado.

**CABLE:** Write for Anaconda Wire & Cable Company's leaflets on their Securityflex parallel mine cable with breaker-strip.

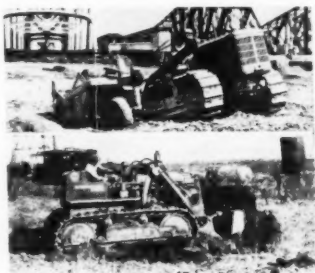
**DIESELS:** General Motor's Series 71 diesels have interchangeable parts. Ask for facts of Series 71.

**AUTOMATIC DRILL:** Write for catalog containing complete data on Independent-Pneumatic Tool Company's automatic Thor Sinker and Thor Leg which offers savings in both operating costs and air consumption.

M.S.A. Oxygen Therapy  
Unit Described

The M.S.A. Oxygen Therapy Unit, a professionally designed instrument for administering oxygen on a demand-regulated basis, is described in a new bulletin, No. CW-3, published by Mine Safety Appliances Company.

With the M.S.A. Oxygen Therapy Unit the patient's safety is always assured, says the manufacturer. There are no flow meters to watch or adjustments to be made after the unit is in operation. Weighing less than 6 lbs., the M.S.A. Oxygen Therapy Unit is furnished in a readily portable metal carrying case. The unit is said to be dependable, easily operated and attractive in appearance.



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New, more powerful "A" models of the International TD-18 and TD-14 Diesel Crawler tractors are announced by International Harvester Company. Both the TD-18A and TD-14A, now in production, have greater work capacities than previous models, and incorporate a number of new features designed for increased operator comfort and longer trouble-free service life.

Specification sheets and catalogs on the TD-14A and TD-18A are available on request. Write MINING WORLD, 121 Second St., San Francisco, Calif.

## Caribou

Continued from Page 22

the old snowshed once stood. As a result of his discovery 25 leases were bought up and a new company, the Caribou Consolidated Silver Mines, Inc., began to reopen the old properties. The company also bought the Boulder tungsten mill northeast of Nederland and altered it to handle Caribou ore. They next began to extend the old Idaho mine tunnel which had been abandoned for over 50 years, until it cut the Caribou shaft, and tapped the veins which had produced such fabulous amounts of white metal.

On November 20, 1946, a spectacular telephone hookup between the mouth of the Idaho tunnel and the company's office in Rockefeller Center, N. Y., was arranged in which the president of the company heard the engineer at the mine say "We are ready. Fire!" and listened to six blasts which announced that work had begun. The bore was driven 3,500 feet and was completed on February 4, 1948. By May 21 the Caribou shaft was cleared of water. A two-foot vein of pitchblende intermingled with silver ore was found at the bottom level of the mine.

Up above the town is the cemetery. Young aspens and evergreens are pushing aside the weathered

wooden markers and winter snows are breaking down the wooden fences which surround many of the graves. Some of those buried on the windy meadow were Cousin Jacks, born in Cornwall, England; some died from mine accidents, and too many were children testifying to the scourge of diphtheria and scarlet fever which twice swept the camp.

On three occasions fire razed the town. In November, 1879, a forest fire, fanned by a stiff wind off the Divide, licked up all the buildings on Caribou Hill, as well as long rows of wood corded for winter use. Four men were working in the Caribou mine when the alarm was given. Although flames were crackling around him, the hoist engineer lowered the bucket for the men and brought them to the surface just as the rope of the hoist began to smoke. The second fire occurred in 1899 and burned 25 homes and business houses before it could be checked. After the third fire, in 1905, which destroyed the entire south side of the town, the dwindling population lost heart and the camp was not rebuilt.

Caribou was so high (9,800 feet) that it had snow nine months of the year and drifts were so deep that guests at the 3-story Sherman House had to enter and leave by the second-story windows. As storm after storm buried the town, drifts made one continuous snowbank the length of the

street. Men working at the mines had often to crawl on their hands and knees between mine and town during a blizzard, from one guide post to another, in order not to get lost. Freighters had to buck the wind and snow, carrying ore to the mills in Nederland or Boulder and returning loaded with supplies and provisions. More than once men were called out of a mine to shovel a road for the freight wagons, for unless they got through the town would be left without food.

Old-timers who visit Caribou today see it through the eyes of the past, for no mine whistles break the silence in the skeleton town and no bells on the freighters' horses announce the arrival and departure of wagons. Old-timers remember, too, the wrestling matches in which the Cornish miners participated, and the Fourth of July, when in the middle of the day's program it began to snow. But no story of Caribou is complete without the account of the load of silver bricks from the Caribou mine which was loaned to Central City in 1872 to form a pavement into the Teller House, so that General Grant, on his visit to that city, might walk into the hotel on precious metal. Gold was so common in Central City in those days that silver was thought more worthy of the occasion.

Caribou rose on silver. Perhaps it will rise again on uranium.

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## GOLD

When Stalin first came to control in Moscow he took the gold prospectors under his personal protection. During the days of the strictest rationing, the population was divided into thirty-three classes and the food rations were given in strict accord with the worker's value to the State. By Stalin's orders the gold prospector was rated alongside the highest officers of the Soviets and they were also given free access to the very select stores.

This preference has been continued until today and has become a part of the fixed policy of Russia. We quote from "The Strategy and Tactics of World Communism":

"A curious feature of this system is the emphasis placed by the Soviets upon gold production. Special incentives have been granted to prospectors, and the production of gold from all known sources has been pressed, apparently without intermission. The value of this gold is almost entirely based upon trade; so long as it is more acceptable than any other commodity, and, at good prices, it is worth producing. This applies just as long as the labor and other costs involved in gold production can thereby produce more machinery for the Soviets through trade than they could produce directly in any other Soviet industries. As long as gold exerts a unique leverage in trade, receivable without challenge on the ground of dumping, and unimpeded by protective tariffs, or any other restriction, this will remain an instrument of Soviet economics."

It is certain that this gold preference will continue during the whole life of the Soviet's present exchange trade agreements with Great Britain and others, and also so long as there is a thriving black market for gold at abnormal prices. In comparison with the above, consider the plight of the American gold miner—perpetually in the "doghouse" and almost forgotten.

When the Russian gold prospector has made his discovery, development and production are turned over to the MVD. They always have ample supplies of political slave labor which works under conditions similar to those described by George Kennan in Czarist days. This cheap gold gains for the dictators in the Kremlin a preferential position in world trade, and to finance propaganda and agents abroad.

Much of the Treasury jargon sounds like double-talk. One instance is the statement that gold has lost its place as a money metal. That is about as true as the classic—"The national debt is not a liability because we owe it to ourselves." Britain has been "off the gold standard" for a number of years. Still it is stated that Britain's financial troubles are due to a shortage of dollars and gold. We are told that the United States went "off the gold standard" in 1933. Still, before the devaluation decree could be signed it was necessary that the value of the new dollar be described, in extreme detail, by its relation to gold at a fixed price.

The Treasury states that United States dollars are accepted because they are backed by the credit of the United States. That also is a fiction that lapsed in 1933. The truth is that United States dollars are accepted because every cross-roads village in the world knows that most of the gold in the world rests in Uncle Sam's strongbox—actually enough to retire immediately 44.74 percent of all the money now at issue in the United States. Added to this is a vast store of silver—gold and silver—the Hard Money Twins, with a worldwide reputation more precious than that of fictitiously priced diamonds. We hope that our Treasury will stop its financial finagling before an economic sledge-hammer blow forces them to accept the truth.

*The Wanderer*

MINING WORLD

# MINING MEN AND THEIR ACTIVITIES

About men who are well known and prominent  
in American metal mining circles

Thomas M. Gerety was elected president and general manager of Tulameen Dredging Company, Ltd., a new company in Oregon. Gerety has had considerable placer mining experience in the state. Members of the board include James W. Boothe, Raymond Moresco, Verne J. Shangle, Arthur M. Whiteside and Benjamin J. Richardson.

Azel L. Johnson has been mining engineer at the Shenango mine office of the Snyder Mining Company, Chisholm, Minnesota, since July of this

Virginia, on the Bertha minerals division staff of New Jersey Zinc Company.

Grover C. Pidgeon, chief engineer for the mines division, Copper Queen Branch, Phelps Dodge Corporation, Bisbee, Arizona, retired from active duty recently to be succeeded by H. H. Schou, who has been mine superintendent. Pidgeon had been employed at the Copper Queen since 1911.

Frank Rahne transferred from Fillmore County to Crow Wing County, Minnesota, as mill foreman for the Hanna Coal & Ore Company.

Frank E. Siegfried is employed in the engineering department of Telluride Mines, Inc., Telluride, Colorado.

Albert Silver is now manager of the Cole mining interests in Nevada which include numerous placer claims and the White Caps and Gold Hill mines.

Joseph E. Parker, Butte, Montana, was elected president of the North Butte Mining Company at a recent meeting of the directors. He succeeds the late Paul A. Gow.

Roy Hall is now working for Camp Bird Mine at Ouray, Colorado. He had formerly been employed with Idarado Mining Company, Silverton.

Paul P. F. Holstein has a position with the Potash Company of America at Carlsbad, New Mexico.

Fred W. Hanson is doing some consulting and field work in Salt Lake City, Utah, since the shutdown of Tintic Standard Mining Company where he had worked for 18 years and had been general superintendent at the time of the company's closing. He is, however, interested in getting a new job.

N. J. Clark, senior vice president of Republic Steel Corporation, with main offices at Cleveland, Ohio, will retire on December 31 after 52 years in the steel industry. Earl M. Richards, now vice president in charge of operations, will become vice president in charge of planning and development and advisor to the president along this line. W. M. Kelly, now in charge of the manufacturing division, will succeed Richards as vice president of operations.



FRANK T. POWERS, who has been connected with the Maryland Bureau of Mines for 30 years, is now director. He replaces J. J. Rutledge, who has become the Bureau's consultant.

D. D. MOFFATT, Salt Lake City, Utah, was elected chairman of the western division board of governors during the final business session of the American Mining Congress at Spokane, Wash.



A. T. Barr is now general superintendent of the New Cornelia Branch of Phelps Dodge Corporation at Ajo, Arizona. He had been mine superintendent for the three years before and has worked at New Cornelia since 1922. J. A. Lentz, until now Barr's assistant, will become mine superintendent. He has been with the company since 1935.

Herbert Z. Stuart has been named to succeed H. H. Schou as chief engineer for the Copper Queen Branch, Mines Division, Phelps Dodge Corporation, Bisbee, Arizona. A graduate of Colorado School of Mines, Stuart has been with the company 13 years.

Dr. J. George Grunenfelder, assistant superintendent of the Zinc Plant

E. J. DUFFY has been named assistant general superintendent of the Kaiser Steel Corporation plant at Fontana, California. He returns to Fontana after 17 months as manager of the Kaiser-Fraser Parts Corporation blast furnace at Provo, Utah.



at the Great Falls Reduction Works, Anaconda Copper Mining Company, has been appointed professor of metallurgy at the Montana School of Mines, succeeding Professor John P. Spielman, who has joined the staff of the State College of Washington to become Dean of the School of Mines.

Sinclair H. Lorain was recently appointed regional director of the Bureau of Mines at Juneau, Alaska, and has left his Albany, Oregon, post for the new position. Taking his place at Albany as director of the Northwestern region is Stephen M. Shelton. Five other directors were named, including Harold C. Miller, Southwestern region, with headquarters in San Francisco; Dr. Clifford W. Seibel, South Central region, Amarillo, Texas; John H. East, Jr., Rocky Mountain region, Denver, Colorado, and Paul Zinner, North Central region, Minneapolis, Minnesota.



HARRY B. HUNTER has joined Foote Mineral Company as a metallurgist in the research and development laboratory. He holds a B.Sc. from Carnegie Institute and an M.Sc. from the University of Pennsylvania.

year. From 1926-1941 he worked for the Oliver Iron Mining Company at Virginia and Eveleth, Minnesota, and for the past seven years he has been connected with mining and civil engineering activities in Phoenix, Ariz.

William L. Keady, president of the United States Gypsum Company, Chicago, Illinois, resigned recently due to differences in management ideas between him and Sewell Avery, chairman of the board.

Kenneth LaBoube recently became a member of the board of directors for Dayton Consolidated Mines Company, Silver City, Nevada. He is employed by Henry F. Swift and Company, San Francisco.

A. E. MacArthur has left his job as State Supervisor of Trades and Industries, in Colorado, to become Itinerant Instructor for Mesa College, and Day Mining instructor for Montrose County High Schools, with his headquarters at Nucla, Colorado. Part of the reason for this change is that the need for a class in mining in the area was becoming very evident. The Atomic Energy Commission, U.S. Vanadium Corporation and other companies asked that a program be set up, and Mr. MacArthur was found to be the best qualified to run it. Classes will follow ideas outlined in the Life Adjustment program as developed through the U.S. Office of Education in cooperation with the Division of Vocational Education.

Frederic H. Main, formerly lecturer in economic geology at Columbia University, is at Austinville,



**Mottier Siebenthal** transferred from the U. S. Bureau of Mines office at Dallas, Texas, to the Duluth office. He is a son of **T. E. Siebenthal**, superintendent of Fillmore County Mines for the M. A. Hanna Company.

**Clarence Westover** can be reached at 714 E. Maryland Avenue, Phoenix, Arizona. He has sold one of his mica mines and is installing a mill to grind feldspar at another. He is also developing some gold claims and marketing magnetite ore.

**Allen W. Legard** is now master mechanic for the Blackbird Division of the Calera Mining Company, Forney, Idaho.

**J. J. Jutzy** transferred from the

U. S. Government's Department of the Interior to be consulting engineer for the Mines Research Bureau, Spokane, Washington.

**Paul C. Keeffe** retired from 37 years of association with the United Verde Copper Company and the United Verde Branch, Phelps Dodge Corporation, on September 1.

**Frank L. Maher** and his wife, formerly with La India Mining Company of Nicaragua, Central America, are forming a company with several associates to develop a mineralized area in the Magdalena Mountains, Magdalena, New Mexico.

**LaMar S. Hills** succeeds **N. E. McKinnon** as superintendent of the ore

**O. P. CHISHOLM** has assumed the presidency of the Mining Association of Montana. **Gailen T. Vandel** resigned to join the staff of Cerro de Pasco Copper Corp., Peru.



haulage department of Kennecott Copper Corporation Utah division, as McKinnon has retired. Hills has been at Kennecott since 1929.

**Douglas McCormack**, Rio Vista, California, has been elected to the board of directors of the Natomas Company, which has both California and Nevada placer mines. He succeeds his late father, **Thomas McCormack**, who was president and general manager. As yet no one has been named as president.

**W. L. Anderson** was recently appointed to the position of general superintendent for the Vanadium Corporation of America at Durango, Colorado. He once worked for Emperius Mining Company, Creede, Colorado.

**Robert R. Wallace**, having been graduated from the Michigan College of Mining and Technology, has accepted a position as mining engineer with the Oliver Iron Mining Company, Hibbing, Minnesota.

**W. C. Dunham**, after seven years with the U. S. Bureau of Mines, has resigned to go into consulting geology and mining engineering and to operate his own properties eventually. He has moved from California to 4643 Hyland Drive, Salt Lake City, Utah.

**R. L. Wetherbee** has completed his work for the Baker Dredging Company and is now manager for the Wester Placers, Libby, Montana.

#### Obituaries

**D. G. Brown**, vice-president of Humphreys Gold Corporation, Denver, Colorado, and general manager of the company's Jacksonville and Trail Ridge mines, Florida, died September 9.

**William C. Henning**, president of A. Leschen & Sons Rope Company, St. Louis, Missouri, died September 6.

**C. J. McLean**, 42, manager of Gold Producers, Inc., Shoup, Idaho, died September 4.

**Lee Bundy**, 40, metallurgist for Day Mines, Inc., Wallace, Idaho, died August 14.

**Charles E. Wuensch**, 57, consulting and mining engineer, inventor and member of the AIME, died August 27 in San Francisco.

**Reginald J. Chennetour**, 64, former chief engineer for Cleveland Cliffs Iron Company, Ishpeming, Michigan, died August 23.

**Frank B. Goodman**, 68, formerly in charge of mines at Montreal, Wisconsin, for Oglebay, Norton and Company, died August 15.

*1949 is the year..*

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## Capitol Concentrates

Continued from Page 15

by raising the price of gold, a move Secretary of the Treasury Snyder abhors as much as did Morgenthau before him. Secretaries come and go but their staffs of experts remain to keep the trends channeled.

Geoffrey Crowther, editor of the London Economist, in a recent interview had this to say about the possible effect of raising the gold price:

"A higher price for gold would be of great value to South Africa and Canada and the other gold producers of the world. And since it would put more dollars into circulation in the world it would, therefore, at least indirectly assist the United Kingdom. But I don't think I would advocate a rise in the price of gold for its own sake.

"If it can be used as a lubricant, so to speak, in some much wider world-wide plan of financial reconstruction, well and good. Taken by itself, it strikes me far too much as a piece of special pleading for the benefit of the gold producers."

As the sentiment in Britain seems strong for raising the gold price about 40 percent, this statement of Crowther's seems a little like a sop to Snyder at the critical time of the A.B.C. conferences.

### ● Little Chance for Tariff

At this writing the chances for passing the bill to restore the copper tariff seem very slim indeed unless by a fluke it gets by on the Unanimous Consent Calendar call. It is generally thought around Washington that the Democratic leadership will not call the bill up for consideration at this session.

### ● Russia Changes Tactics

After its nearly complete shut-off of manganese and chrome shipments the Soviet Government relented and shipped in about a million dollars worth in July, according to the Department of Commerce. Blowing hot and cold is a Russian stock in trade.

### ● Just an Option

According to recent reports Marshall Plan money is being used for cobalt production in Africa and all we are getting out of it is an option to purchase part of the output while British banks finance the deal with our money.

### ● Minerals Coordinator Needed

According to the Department of Interior, at least 25 federal agencies are concerned with our mineral resources. This is a good argument for the bill introduced by Representative Walter S. Baring of Nevada to establish the Office of Federal Minerals Coordinator to bring them all into the same policy line.

### ● Price Incentive Advocated

In an argument for changing the mining laws recently circulated by

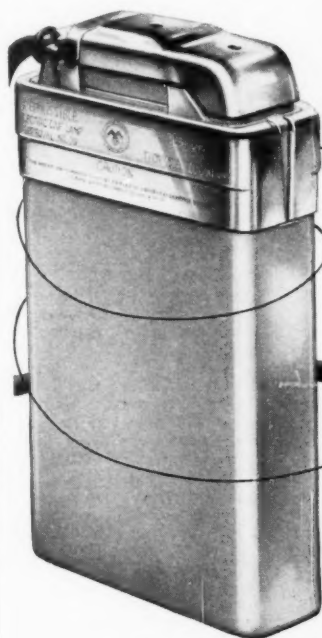
the Bureau of Land Management among members of Congress, the following interesting passage occurs, referring to bauxite, manganese, chrome, tungsten, mercury and similar minerals:

"In such cases, more positive exploration activities on the part of both the Geological Survey and the Bureau of Mines are justified, as is provision of a domestic price sufficiently above world markets to furnish an adequate incentive for maintaining operations."

### ● British Tin Policy Questioned

It will long be remembered how the British-Dutch rubber cartel put the squeeze on the United States and ran the price of raw rubber to such a high figure some years ago. It is for

this reason as well as the possibility of losing sources to the enemy that so much stress has been laid on having ample synthetic rubber plants available. Now it appears that, in spite of the mountains of high-grade tin piled up in Malaya and the East Indies, the British are intent upon forcing the price above the present \$1.03 figure and, in fact, have for a time suspended all tin exports to the United States. Washington authorities express themselves as being shocked by this move, especially as there are rumors that Britain may sell tin to Russia in violation of the Anglo-American strategic raw materials agreement. Morals are for individuals and not for nations engaged in desperate struggles for existence, apparently.



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## precipitates—NORTHWEST

### AEC Will Spend Million For Arco, Idaho, Plant

About \$20,000,000 will be spent by the Atomic Energy Commission for its materials testing reactor near Arco, Idaho.

The Chemical Plants Division of the Blaw-Knox Construction Company, Pittsburgh, Pa., has signed a cost-plus-fixed fee contract with AEC, which will amount to around \$1,870,000 and is for the designing and engineering work connected with building the new plant.

Leonard E. Johnston, manager of AEC's Idaho Falls office, advised that the intensity of the atomic bombardment at the new reactor will be greater than at any other U. S. plant.

For the past three years, research, development and preliminary design have been going on at Oak Ridge National Laboratory in Tennessee, and for the past six months by the Argonne Laboratory in Chicago, also, in preparation for the Arco project.

### American Zinc Reopens In Washington

Through the fourteen months of its late labor strike, American Zinc, Lead and Smelting Company, Metaline Falls, Washington, has made numerous improvements at its Grandview property, according to D. I. Hayes, western manager.

Among these improvements, which are designed to increase output 150 to 200 tons a day, were the sinking of the main shaft 700' further with a station cut at the first level (development of the next level is still to be done), the installation of a third compressor, completion of new installations in the concentrator, remodeling of the crushing department, with equipment added, and construction of a new office building and change house.

The total production capacity of Grandview Mill now is 800 tons per day.



Idaho's Coeur d'Alene District is in the midst of what appears to be a long labor strike. Properties affected at this writing are Bunker Hill and Sullivan's smelter, Dayrock mine, Frisco mine and Sunshine mine.

Having reached 1,200' below sea level on the 27th level, Bunker Hill and Sullivan Mining and Concentrating Company, Kellogg, Idaho, be-

comes the deepest mine in the Coeur d'Alene district. Crosscutting 2,400' to the Emory vein and 3,500' to the Truman vein will begin as soon as a new station, now being cut, is completed. On the 25th level another station is being cut from which crosscuts will eventually extend under the main shaft. Raising to the 23rd level will follow this operation.

Day Mines, Inc., has two deep exploration projects underway at the old Hercules mine, Burke, Idaho. At the 1,200' level, lowest level of the mine, a station is being cut for diamond drilling of the vein 500 and 1,000' below. Drifting on the 1,000' level to explore the vein near the Hercules fault continues with several hundred feet left to go. A crosscut to explore the Mountain View and Hummingbird veins is being driven from the Sherman 1,500' level. So far over 850' has been driven with the final objective 1,400' ahead. Exploration of the Watson vein in the Tamarack is planned by sinking the shaft 300' further. Meanwhile, the company and American Smelting and Refining Company have, through their combined operations, sunk the Galena shaft to the 2,200' level and expect in another year to reach the 3,000' level where sump and pocket excavations will be completed.

Reports from Sam Peterson, general manager of Hansy Copper and Gold Mines, Inc., Adair, Idaho, state that blocking out of high-grade copper ore on three levels and construction of 100-ton ore bunkers are being completed so the company can start regular ore shipments to the Anaconda smelter. Diamond drilling has proved the vein on the footwall is 25' wide, but stoping operations are at present concerned only with a six foot wide streak of ore. A new road has been completed to the mine to facilitate shipping.

Sawtooth Mining Company was recently formed to develop gold claims in Custer County, Idaho. The claims, bought from Harry McClure of Custer, consist of the New Light group and have 500' of prospect tunnels. An additional 500' will be driven. A mucking machine has been purchased and other equipment is being assembled. A four to six foot cross vein, believed to be an extension of the rich old General Custer vein, is being followed with the main objective lying 400 to 500' ahead. Director of operations is Arthur Lakes, geologist and mining engineer of Spokane, and George Schuster is president. Work is being done by William Corrigan of Challis on a contract basis, and he has provided a

compressor and other necessary equipment.

Drifting on the 2,800' level is progressing at a rate of nine feet per day toward the Commodore Truxton area of Coeur d'Alene Mines Corporation's property at Osburn, Idaho. The downward projection of the ore showing existing on the 1,000' level is the objective and is estimated to be at a distance of about 600'.

A large underground compressor room is completed in the upper Star mine tunnel on Sullivan Mining Company's property, Burke, Idaho, and is the second in operation in the mine. A considerable economy is effected by the additional compressor as it eliminates the 12,000' of air line from the Hecla surface plant at Burke. Power requirements have been reduced from 1013 hp. to 738 hp. by this change, according to R. W. Neyman, general superintendent.

Extensive development is planned by Selway Mining Company, a California corporation, on several unusual mining claims examined by Judge Walter Hovey Hill, geologist, at the Pete King Creek tributary of the Lochsa River near Grangeville, Idaho. Judge Hill said that many gold and silver veins or lodes crisscross the property in the form of large fault fissures. The gold and silver ore is a rare occurrence in central Idaho, and these claims are said to be similar to the Comstock lode in Nevada.

Up for sale or operation is Gold Bar Placer, Inc., a property consisting of 60 acres of high bar and 39 acres of low bar on the Salmon River, 12 miles south of White Bird, Idaho. The low bar is around 15' above the river and suitable for dredging operations. The high bar starts at the river's edge, rises 200' and contains four to five million yards of 50-cent gravel, suitable for hydraulic or ground sluice operation. A number of prospect tunnels exist here. Estimates as to the cost of running the property run to 10 cents a yard. The company is incorporated in Washington and is held under option by a Wallace mining man.

Silver Summit, Inc., Wallace, Idaho, is continuing drifting on its recently discovered vein on the 3,200' level. Drifting is now beyond 150' with ore averaging seven feet wide and appearing good. On the 3,400' level of the winze shaft, crews are cutting a station and skip pocket, and a new 500' crosscut will be driven to the vein. Development on both levels is on a three shift basis, according to L. E. Hanley, president.

A large developmental program is scheduled for Vindicator Silver-Lead

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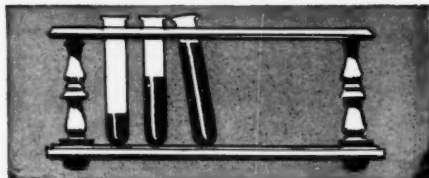
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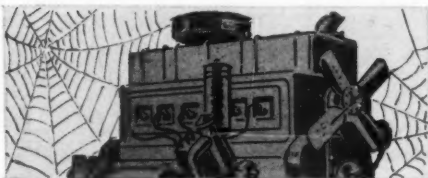
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Mining Company, Mullen, Idaho, whose property adjoins that of the Lucky Friday company. Shaft sinking is planned in the footwall of the main galena streak located 800' from the tunnel portal, and 400' down in a 50' sheer zone. The 1,400' prospect tunnel, which has been enlarged a distance of 500' will be further enlarged to the vein. A raise, mainly for ventilation, is to be driven on the ore to the surface, a station cut on the tunnel level and an electric hoist installed. Also to be added are a mucking machine and electric trammer. The above work was outlined at a recent stockholders meeting at which George B. Dalton was elected president.



The U. S. Grant Mining Company, Virginia City, Montana, some time ago consolidated several claims into two groups. One of these groups, called the U. S. Grant operation, consists of the Alhambra, Bamboo Chief, El Fleda and U. S. Grant claims. Drifting on the El Fleda and crosscutting 300' to the Chief vein in Bamboo Chief ground is underway besides raising 500' on the El Fleda. The second group, known as the Easton-Pacific operation, consists of the Easton, Utah Northern and Pacific claims. Here two raises 140' from the new 4,600' Easton-Pacific tunnel have been completed and rehabilitation of old workings in the Easton continues as well as shipping of some development ore. The company is shipping siliceous gold-silver ore from the El

Fledda and reports that returns have been profitable. Erection of a 400-ton mill is planned to treat ore from the Easton-Pacific.

In the Philipsburg district of Montana milling of manganese ore is proceeding, mined largely from the Moorlight group of claims, which are controlled by the Taylor-Knapp Company. A number of small operators and lessors turn their ore over to Taylor-Knapp for processing also.

With the bugs worked out of the flowsheet, Linton Mines is producing high-grade galena concentrates from the recently installed WKE Mobil mill on the headwaters of Cramer Creek about 30 miles east of Missoula, Montana. The mine is an open pit several hundred feet above the mill, and ore is bulldozed over the edge of a bluff and travels by gravity to the mill. Thomas J. Linton is manager of the new property. Sam Moses is mill superintendent and Kenneth Smallwood, mine foreman.

A shaft-sinking program at the Bald Butte mine operated by the Carbonate Mines Company, Marysville, Montana, is under way to attempt to cut a potentially high-grade gold vein. According to Morris Lawlor, general manager for the long successful mine, the vein is believed to be an extension of an old vein 60' underground and worked profitably years ago. Ores originally were reduced by stamps and recently, through the cyanide process, the old tailings yielded considerable gold.

Two silver strikes are reported at Martin Mining Company's property in the Hog Heaven district southwest of Kalispell, Montana. One vein averages 20' and the other 30', and both are half a mile or so from the old workings, necessitating the opening

of a new tunnel and shafts. The original crew of five will be increased to 15. Mining is to begin at once.

Further development work and an increase of the working crew to two shifts began several weeks ago at the Ambassador Mines Corporation's property, according to Dale Lanphere, president. The company controls 21 claims in the Trout Creek area near Thompson Falls, Montana. A crosscut is being driven to the Wanda vein, about 500' ahead and below a surface outcropping with values in gold, silver and lead.



Limonite is being shipped from Scappoose, Oregon, to British Columbia by James M. Orr, Portland minerals dealer. The ore, mined by power shovel from an open pit mine two miles from Scappoose, is found on the old Oregon Charcoal Iron property. A drying and preparation plant has been installed by Orr in Scappoose. The limonite will be used to remove sulphur from manufactured gas in British Columbia. Other uses are as pigment, and a booster for stock feeds.

Development at the East Eagle mine in northeastern Baker County, Oregon, continues, with showings of copper, gold and silver in evidence so far. A road has been built to the property and a mill will be installed. Deep snowfalls in the area have delayed progress a good deal during the past year. Rawleigh Chadwell is owner.

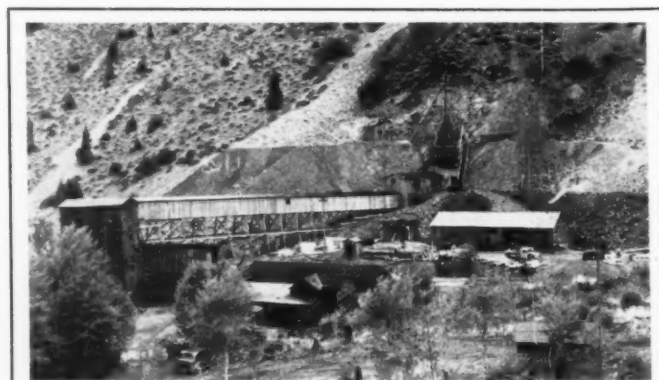
Massive chalcopyrite, pyrite and bornite is being mined at the Hamlen copper property on Onion Mountain, southwest of Grants Pass, Oregon. J. E. Hamlen and Ben Baker, who own the property, have had a rail tram built to carry ore down the hill from the main tunnel to the road, from which the ore will go to the Tacoma smelter. Further exploration of the property is also in progress.

A dragline outfit with dry-land washing plant has been installed by R. F. Oliphant and G. C. Pepperdine, at their Esterly mine located near Cave Junction, Josephine County, Oregon, and operations are beginning. At the north end of the property Land and Mining Investment Company is also installing a bucket-line dredge. The property, which has had several different owners in its long history, is a gold and platinum producer.



Uranium has been discovered on the property of Big Dome Mining Company, 27 miles above Roslyn,

MINING WORLD



## NEW OREBODY AT IDAHO'S CLAYTON SILVER

A new orebody was recently discovered during drifting and crosscutting on the 400' level of Clayton Silver mines' property, Clayton, Idaho. Engineer Norman M. Smith said that the shear was wider and more heavily mineralized than the same ore shoot on the 300 level and proves the downward extension of Clayton ore. Development on this shoot, called the South, is taking precedence over other operations at the mine. The newly reconditioned 100-ton mill is milling development ore and capacity may be increased should ore from the 400' level prove up a sufficient tonnage.



Washington, in Kittitas County. Test holes were put down by the company, and the formation has been uncovered for 800' and 10-50' wide. Homer King, head of Big Dome, located the showing some time ago while developing tungsten ore on the property. Development is planned if uranium content of the ore is sufficiently high to be of commercial value. A 40-ton mill has been installed and King hopes to have it operating this fall.

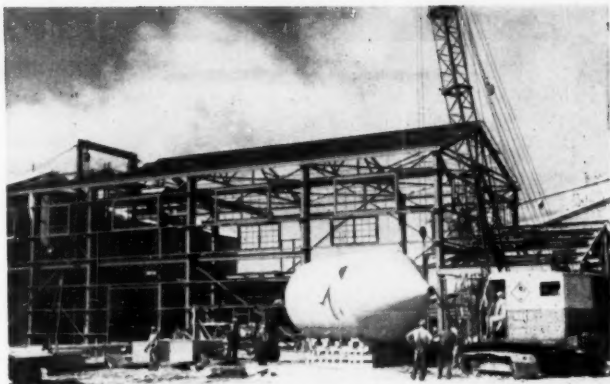
Operation of the new flotation mill at Alder Gold-Copper Company's property (once known as the Methow mines) near Twisp, Washington, began in October. The mill has a 250-ton capacity which can be doubled if necessary, according to Roy Magney, secretary. A crew of about 30 men is employed at the site. E. Royce is president.

Gold Syndicate Corporation, which owns the old First Thought lode mine at Orient, Washington, has developed a new business—that of packaging "natural" gold nuggets in 2½ oz., 10 oz. and 50 oz. lots. This sideline to the company's regular mining activities is explained by Frank Lilly, president, as a result of popular demand for "gift" gold. Laws covering the sale of unrefined gold generally restrict operators to placer metal, and Gold Syndicate will get its nuggets for the small packages from placers in Alaska, Oregon, Montana, Washington and Idaho.

Inland Empire Steel Company's new \$400,000 block-long warehouse building has been completed at Spokane, Washington. Clyde Summer-ville, president, announced recently. The firm also plans to build an office building on the 90,000 sq. ft. lot. Complete stocks of steel, copper, brass and aluminum products are housed in the new building ready for shipment to northwestern states.

From a stockpile of 4,000 tons about 200 tons of lead-zinc per day is going to Goldfield Consolidated Mining Company's Sierra Zinc mill from the Iroquois Mine, three miles northeast of Leadpoint, Washington. The Iroquois is run by Mines Management, Inc., which advised that milling tests are being carried on to determine the type of mill to be built later on at the Iroquois. Meantime a large ore-body in the mine is being blocked out by three crews which are raising, drifting and cross-cutting. Over 1,000' of tunnels have been completed, about half the amount necessary for planning on the eventual mining methods to be utilized.

The Bella May and adjoining properties of the Metaline Mining and Leasing Company are opened again after a shutdown of nearly ten months. President James L. Leonard says that the recent reopening of the American Zinc, Lead and Smelting Company's Grandview mill where Metaline ores are smelted was partially responsible for operations beginning again. The mines are at Metaline Falls, Washington.



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### Wisconsin Zinc Property Is Nearing Production

In 1948, Calumet and Hecla Consolidated Copper Company discovered two zinc orebodies near Schullsburg, Wisconsin, and since then has been developing the property for production.

Two million tons of ore averaging around six percent zinc has been indicated from drilling up to this time.

The company is building a flotation concentrator to handle 1,200 tons per day. The main shaft is finished, and mining will be done by crosscutting in two directions to each orebody from the central shaft, 350' deep.

### Central Area Reports Uranium Deposits

In the Ozark Mountains near Harrison, Arkansas, Frank Thomas, an independent mining engineer, has discovered a deposit of radioactive rock. Samples of the ore have been sent to the United States Bureau of Mines at Rollas, Missouri, for tests.

Meanwhile, an official of the Bureau at Rolla, Leon Dupuy, admitted another deposit was unexpectedly found in the same general area when Bureau of Mine's men were search-

ing for another mineral. Dupuy said that any further information on this find must come from the Atomic Energy Commission.

The Rolla Bureau is also progressing on its large program to test old diamond drill cores which have been stored away for many years in the core library building. These samples come from Missouri, Arkansas, Indiana, Illinois, Kansas, and Oklahoma, and a few of the many thousands have responded to Geiger counters.



Shaft sinking and installation of a mine plant is underway at *Vinegar Hill Zinc Company's Blackstone* property south of Shullsburg, Wisconsin, and mining will be resumed. The company, which has offices at Platteville, has not mined zinc since 1936, but continued to operate through its custom flotation mill at Cuba City. However, because of the low cost of zinc and high cost of operations prevalent now, little custom ore was available with the result that the mill

recently closed. About the only avenue left open to prevent the company from closing entirely appears to be active resumption of mining.



An option has been taken on the *Royal-Vindicator Gold Mine*, Tallapoosa, Georgia, by a Canadian firm which expects to start a thorough core drilling program soon. The mine is one of the better gold properties in Georgia. Reports have been received that several other Canadian firms are studying the potentialities of southern gold mines.

A strike at the Palmerton, Pennsylvania, plant of the *New Jersey Zinc Company* has forced the closing of its Franklin and Sterling mines. The reason given was the lack of storage space for the ores that are shipped every day to Palmerton plant from the mines.

Through research which is still progressing at its Watervliet, New York, plant, *Allegheny-Ludlum Steel Corporation* is producing large amounts of pure titanium. A process for reduction of quantities of the metal to a pure state has only been known a few years. Allegheny-Ludlum advises that experimental lots of the metal in strip, bar and wire form are now available. The price, which now ranges from \$5 to \$20 a lb., is expected to be reduced in time through further research.

A tungsten deposit has been found near Concord, Cabarrus County, North Carolina, through a state geological survey now in progress. R. S. Houston, geologist employed by the state, reports that of the numerous other metals he has come across in the unexplored 25-mile area, the tungsten was the most promising looking. Meanwhile, exploration of tungsten bearing property owned by *Nash-Moore Mines, Inc.*, in the same county, continues, with full development of the deposits contingent on results.



*M. A. Hanna Company* has temporarily instituted a four day week at all its Michigan mines, according to S. E. Quayle, manager for the company in Michigan. Reduced contract

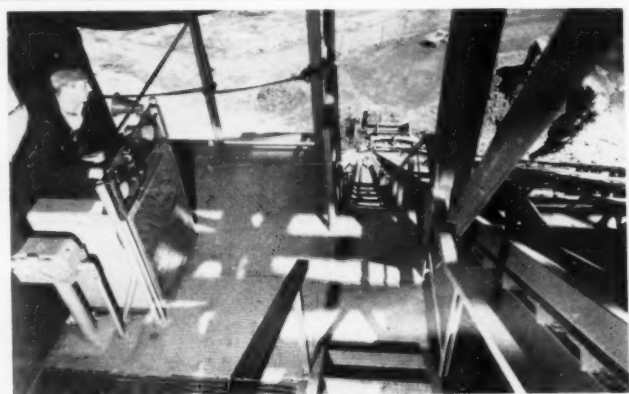


Photo courtesy of Allis-Chalmers Mfg. Co.

### HANNA INSTALLS REMOTE CONTROL

A stationary screening plant at the open pit South Agnew iron mine of the *M. A. Hanna Company* near Hibbing, Minn., has been equipped with a versatile skip hoist remote control device which eliminates the need for numerous wires and long mechanical, hydraulic or pneumatic couplings. The control stand of the new system is located in a tower 125 feet high. From it, the operator has complete direction of the hoist, which is located in a building some 300 feet from the tower, along with the main hoist mechanism, hydraulic brake operating control and hoist control panel. The stand has two operating handles, one for raising and lowering the skip hoist, and the other for the control of the hydraulic brake engine. It also has a rotary control switch handle that serves as a back-out master, an emergency "Stop" button that shuts down the complete system and an "On-Off" button for the control.

commitments for raw materials by the steel mills is the reason for curtailment. The mines affected are the Homer, Wauseca, Bengal-Tully, Hiawatha 1 and Hiawatha 2, and the shops at Rogers will also feel the reduction of time. About 700 men are employed by Hanna.

On Michigan's Marquette Range the North Range Mining Company has men at work repairing No. 5 shaft at the Champion mine to be used for the handling of men and supplies. The shaft is about the same depth as the one now in use—2300'. A good tonnage of hard ore is being produced which is shipped to the U. S. Steel Corporation. About seventy men are now working at the Champion.

The Haley-Young Mining Company, of Hibbing, Minnesota, is drilling a property located near Frazer City and the company's Elbern open pit mine. The Elbern is shipping regularly, with 250,000 tons scheduled for the season. The mine's new crushing plant is in operation.

Another reactivated old mine is the Ajax near Biwabik, Minnesota, on the eastern Mesabi. Opened up in 1899, it was operated until 1904 by the Colonial Mining Company and called the Kanawha mine. A total of

241,564 tons had been shipped up to 1949. Last year it was stripped by Skubic Brothers under lease from the David Mining Company (David D. Haley, president), and this year production is being carried on. The mine is a shovel-truck operation with a small washing plant.

The new heavy-media separation plant at the Inter-State Iron Company's Grant mine, Buhl, Minnesota, is now in operation. The feed to the cone shaped tank which contains the ferro-silicon heavy media is from  $\frac{1}{8}$ " to  $1\frac{1}{4}$ " in size. The product is good.

The E. W. Coons Company is placing the concrete work for a large crushing plant at the Oliver Iron Mining Company's Sherman mine (formerly the South Frazer). About 3,000 cu. yds. of concrete will be required. The Coons Company recently completed a stripping contract at Oliver's Wyoming mine in Virginia, Minnesota (adjoining the Julia and Union mines), and is now loading the ore.

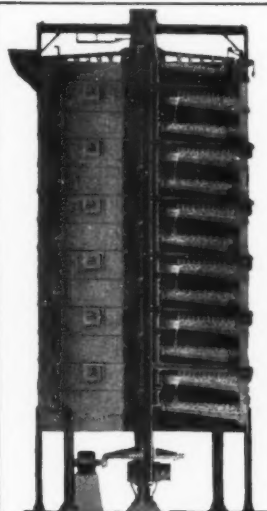
The Groves, Lundin and Xoc Corporation, contracting firm of Minneapolis, Minnesota, has begun a four million cu. yd. stripping contract for the Bennett mine of Pickands, Mather & Company near Keewatin. The re-

moval of this surface will necessitate a rerouting of the Bennett mine road to Keewatin.

The Cleveland Cliffs Iron Company is carrying on a diamond drilling and trenching program at Humboldt, Michigan, in a deposit of low grade iron ore. The acreage that the Cliffs company is now exploring was acquired from the North Range Mining Company.

The Vicar mine of the Jones & Laughlin Ore Company at Wakefield, Michigan, has installed a conveyor on the east side of its headframe to handle rock produced during underground development.

The Cleveland Cliffs Iron Company's new Mather "B" shaft at Ishpeming, Michigan, has been completed at a depth of 3,095', a Marquette range record. Sinking was begun in October, 1947, and was greatly accelerated by the development of the hydro-mucker which was used for much of the sinking. For the past ten months the rate of progress was approximately 150' per month. After shaft stations and other preliminary work have been completed, main level drifting will be started toward the Mather "A" shaft to meet a drift already being extended from that portion of the mine.



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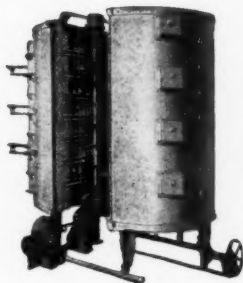


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### Utah's New Park Mines Reopen After Shutdown

Operations at New Park Mining Company, Keetley, Utah, resumed Sept. 19, after a shutdown lasting from July 1. Work is going ahead on the Pearl fissure, which has higher gold values than the previously emphasized Mayflower fissure, according to W. H. H. Cranmer, president and general manager. He adds, "Present plans are to install a new station on the 1500 level, 125' below the present level of operations, and to drive over 600' to Pearl fissure, which is getting larger and richer as we go."

For the first time in Park City, New Park is doing a great deal of work with geo-chemical methods of surface testing, with "encouraging results," reports Mr. Cranmer. Also, arrangements have been made for the purchase of a new Nordberg hoist to be delivered in about a year, when New Park plans to change its electrical set-up, and put its newly-installed steam plant in operation.

### Stripping Contract Goes to Utah Firm

Columbia Iron Mining Company, operating west of Cedar City, Utah, at Desert Mound, has awarded a

stripping contract to the Utah Construction Company. Approximately 3,000,000 cu. yds., of overburden will be taken from the iron ore deposits.

Columbia, a subsidiary of Geneva Steel Company, advises that the mining of these deposits added to continued mining of its Iron Mountain properties will not increase iron ore production but will enable the company to mine more selectively.

### Colorado Company Starts Prospecting

In the Mineral Hill district, northeast of Cripple Creek, Colorado, the Cripple Creek Development Company has now churn drilled four holes and will drill a good many more in the area in its large program of development. Henry L. Nelson, drilling contractor of Nevada, is in charge of the drilling and is associated in the company.

The company is being formed by Sam Bailey, who recently sold out his interest in the Cripple Creek Mining and Milling Company in order to carry out the efforts of the new company to buy and lease properties throughout the Cripple Creek area.

Besides the Mineral Hills properties, Bailey has a lease on 55 acres on Ironclad Hill where extensive drilling will also be done.

COLORADO

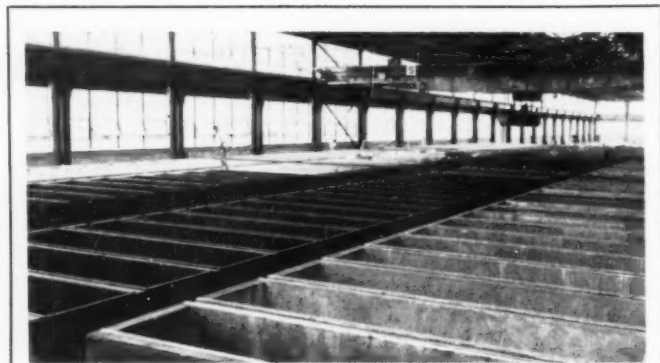
The Ajax Mining and Oil Corporation has been formed to develop both mining and oil properties in western Colorado. Carl Shubert of Grand Junction, Colorado, is president. Allen D. Engle is vice president and Vern Lee secretary-treasurer. Ajax has about 30 carnotite claims in the Gateway-John Brown districts, three of which are in production. Vanadium-uranium orebodies have been blocked out in several claims and some ore is being mined and stock-piled at others. The corporation which is closed and has no stock for sale, will lease most of its claims rather than operate them itself.

Reopening of the old Valentine mine near Idaho Springs, Colorado, by Sam Silverstein and Associates has been reported. The firm will rehabilitate the workings, which consist of a shaft and several drifts. The mine is a gold producer.

A second dragline dredge is in operation at the Hayden and Mt. Elbert placers, operated by General Gold Corporation, Twin Lakes, Colorado. The two dredges can handle 7,000 to 8,000 yds. of material and, according to Robert Gerke, superintendent, the company hopes to get in another month or two of work before snow shuts the mine down. At an elevation of 9,600', the mine is hit by occasional snow flurries even in summer. Water for the operation comes from Box Creek. As an economy measure, washing plants were recently switched from diesel to electric power.

Two shifts comprising eight men are now at work sinking the shaft at the Forest Queen mine, Cripple Creek, Colorado. There considerable rehabilitation was recently completed by the operators, Champion Mines Company. A Leadville hoist has been installed on the ninth level (950' down) below which the shaft sinking is progressing. After going down 200', work will commence both north and south along the contact where good values have been found in the past.

Rico Argentine Mining Company recently announced the completion of its flotation mill renovating program at Rico, Colorado. About 350,000 tons of ore had gone through the mill during the past 10 years, making overhauling a necessity. Although the mine has not resumed normal



### NEW TANK HOUSE AT GARFIELD, UTAH

Pictured above is the tank house of the new \$16,000,000 electrolytic copper refinery nearing completion at Kennecott Copper Corporation's Garfield, Utah, plant. When completed, one-third of this nation's copper will cease traveling from west to east and back again as it does now before becoming commercially marketable. When the refinery starts operating it will have a capacity of 12,000 finished tons monthly and the entire operation will consist of buildings covering nine acres, 800 additional employees and \$2,500,000 in wages annually. The Utah Division of Kennecott produces 35 percent of the nation's copper. Ore goes from the Bingham open pit mine in Salt Lake Valley to reduction plants and smelters at Arthur and Magma.





Above cut shows the headframe of the Rico Argentine Mining Company outlined against a stormy sky.

operations yet, some promising development has been reported.

The *Carlton* mill at Cripple Creek, Colorado, is slowly progressing towards completion. Installation of fabricated steel in the superstructure of the building is about to begin. Thirty-five steel roof trusses have been constructed. Wall columns have been delivered to the property and 2,834 yds. of concrete has been poured for walls and footings. The working force of 88 men is now double that of three months ago.

At Rico, Colorado, a vein of crystalline gold was recently turned up by Louis Jones and Buck Lill. The town of Rico has its being due to the silver found in the area (in amounts warranting few large mining ventures), and gold is a very rare occurrence. Thus, the new strike caused considerable scoffing, since no one thought it would produce more than a grab sample. However, at last reports, several weeks later, Jones and Lill were still mining the ore, which they found while working in the shaft of their small mine where they unexpectedly cut the glittering vein.

## SOUTH DAKOTA

At Aberdeen, South Dakota, the bentonite processing plant has been rebuilt after having been ravaged by fire earlier in the year, and shipments are going out regularly to Arabia and other buyers.

## UTAH

Jack Sargent, vice president and general manager of *Frisco Silver Lead Mining Company*, recently announced that his company has given a 20-year lease on its property to *Metal Producers*, of Los Angeles, California. The company's property is located in the San Francisco Min-

ing District, Beaver County, Utah, and was previously operated by the late Louis Block. Western Alloys took a lease on the ground in the early summer of 1948 and they sunk a shallow winze to develop a promising lead vein. They later assigned the lease to Frank Dean, of Salt Lake City, who extended the winze to 80' and then crosscut to a parallel vein from which he mined and shipped 250 tons of ore. In April of this year Dean ceased operations due to the drop in metal prices. Metal Producers has finished erecting a headframe, installing tracks and building a warehouse and has resumed development of the property. The Frisco ore combined with the output of the Horn Silver mine is expected to keep the lessee's 500-ton mill at Milford, Utah, in operation on a 24-hour basis.

The tunnel being driven at *Fowler Mines* is now in over 1,000', according to M. G. Fowler, owner, and promising veins have been cut. The mine is at Mineral Mountain near Moab, Utah. Production in the near future is predicted.

Reopening of *Park Utah Consolidated Mines Company*, Park City, Utah, has been postponed, states Paul Hunt, mine manager, because of the "drop in lead, shaky zinc situation and current steel strikes." However, part of the crew has been retained to continue mining the pillars around shaft No. 1 orebody. With the removal of several thousand more tons the area will be abandoned at depth. The new Ontario Extension orebody, discovered some months ago, is still under development. A drift on the 1,700' level designed to meet the orebody projecting down from the 1,600' level is nearly finished. Development for extraction will then follow.

*Chief Consolidated Mining Company*, Eureka, Utah, is producing almost normal volume after a short summer letdown. Exploration work has been reduced and mining is now more selective. *E. J. Longyear Company* and *Consolidated Goldfields of South Africa*, working on Chief's 1,800' level, are pushing ahead their 1,900' exploratory drift to cut a zone drilled last year with expectations of reaching their objective late this year.

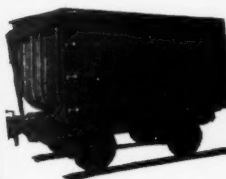
## WYOMING

*H. S. Hardee and Sons*, Sunlight Basin, Lovell, Wyoming, report that shipments of both horn silver and galena ore should begin soon to Midvale, Utah, for smelting. The ore is mined from two tunnels on the property. Stepped-up activity at the mine is expected as soon as some drifting and timbering work is finished, bunk houses are built and pipe lines laid.

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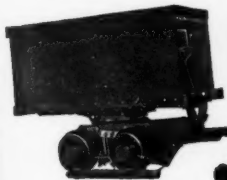


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### Nevada Gold Mine Is Awakening

Completion of the 50-ton mill at the Alabama gold mine was announced by Francis Smith, general manager, under the direction of Jesse T. Boyd, well known mining engineer. The mine is owned by El Dorado Gold Mines, Ltd., and is 48 miles from Winnemucca, Nevada, in the Awakening District. A new road has been built to the mine and equipment is rapidly moving in.

Extensive development of the mine has begun as well as diamond drilling from the 400' level. A 600 to 800' tunnel is being driven.

President of the company is Fred Stanley of Stockton, California. He feels that the development of the mine will soon make it become one of the largest projects in the area.

ARIZONA

Two drifts are being driven at the Apache asbestos mine for further de-

velopment of the ore body prior to stoping. This property was formerly held by the Apache Asbestos Mines, Inc., but recently was transferred to Arizona Chrysotile Asbestos Company which has been consolidated with *Globe Asbestos Company*. Some production, about 25 tons monthly, is coming from development work and is rated as Group No. 3 spinning fiber asbestos. The two drifts are about 250' apart, the first being in 330' and adjacent to old room and pillar stopes. The No. 2 has been advanced about 40' from the portal. Rock drilling equipment is the only machinery, and the ore is sorted by hand cobbing, loaded in sacks, and transported 3/4 mile by burro to the dirt road for trucking to Globe. Grady B. Gullege, Box 606, Globe, Arizona, is president of *Globe Asbestos Company*. D. B. Brown, Box 328, Globe, is superintendent at the Apache mine. The property is located on the Fort Apache Indian Reservation.

The *Cedar Talisman Consolidated Mining Company* is stoping about 200 tons of lead-zinc-silver-gold ore from the 400' level of its *French Lilly* mine, Cleator, Arizona. During the

first half of the year all efforts had been directed toward development work, such as drifting and raising, principally on the 400' level. Twelve men are employed under the supervision of Chester Knight, superintendent, Cleator, J. Walters, Jr., Box 1548, Prescott, is company manager.

The *King* mine, a group of 33 claims in the Helvetia Mining District of Arizona, has been leased by W. J. Allison of Phoenix, and a development program started. At present 10 men are employed, crosscutting and raising, and no attempt at production is being made. Roger Davis, Box 56, Sahuarita, Arizona, is superintendent in charge. The King copper claims are owned by the Lewishon Estate.

The Atomic Energy Commission has ordered an inspection of the *Hillside* mine, at Hillside, Arizona, as a possible source of commercial uranium production. The examination will be made by Dr. George Bain, Amherst University scientists. The Hillside property has been operated intermittently as gold, silver, lead and zinc property for nearly a half century. Currently it is owned by J. C. Lincoln of Scottsdale, Arizona, and Ernest Dickie, manager of the Bagdad and Hillside mines. According to Charles H. Dunning, director of the Arizona Department of Mineral Resources, the uranium content of the Hillside ore appears to run between 0.5 and 1 percent on the basis of Geiger counter tests. Samples taken by the department so far have come from the 300' and 400' levels of the mine, where the uranium is associated with pegmatite in a schist formation.

A development program has been started at the *Carmelita* mine, near Wenden, Arizona, by Houston L. Walsh of Wenden and Jack R. Wilkinson. The Carmelita is a group of nine gold claims in the Ellsworth district. A gallows frame has been erected, the shaft cleaned out and drifting started. A crew of four men is employed.

The *Logan Mine*, situated in the Cherry Creek mining district of Yavapai County, Arizona, and idle since 1936, has been sold to William Matthews of Los Angeles, California. The property is developed by an incline shaft 615' deep and several hundred feet of drifting. Some stoping was done between the second and fourth levels. The new operators are screening the waste pile, have discovered three new veins by dozer work and are sinking a new shaft. This shaft, sunk under contract, is on the Logan vein No. 4 and will be 100' deep. Further development work is



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planned in which a tunnel will be driven to intersect veins No. 3 and No. 4. Thus it is anticipated 450' of mining backs will be developed and 25,000 tons of milling ore will be blocked out. A 75-ton amalgamation and cyanization plant is planned for 1950. G. C. Moore, consulting mining engineer, is in charge of the operations.

Salero Metals Corporation has received the approval of the Arizona Corporation Commission to increase its capitalization from \$100,000 to \$3,000,000. The company, which is headed by J. W. Crotty of Dallas, Texas, is formulating plans for an extensive lead development program in the Patagonia-Tubac area of southern Arizona.

Lester G. Fernstrom, 648 West Oro Street, Tucson, Arizona, has reported an uranium discovery in the Arivaca mining district. The uranium-bearing material was found in and near an abandoned copper and silver mine, and picked samples are said to have assayed from 0.25 percent to 29 per-

cent uranium. Some surface work is being done, and Fernstrom stated that plans were being made to reopen some of the underground workings as soon as possible. Associated with him in the venture are Roman Encinas of Arivaca; Elmer Fernstrom, Tucson, and Jack Mulcahey, Tucson.



Several thousand tons of iron ore are being shipped to an Arizona firm for test purposes by L. D. Webster of Twenty-nine Palms, California, from his Copper World claim in the Bullion Range, San Bernardino County. A six mile road was built into the property to get out the stockpiled ore.

Madre de Oro Gold Mines, Inc., has reopened the Church mine at El Dorado, California, under the supervision of Lester L. Sibley, president and manager. Extensive exploration is planned besides mining of known

low grade orebodies ignored by previous owners. The mine has been closed since 1942.

Fairview Placers, on Trinity River near Minersville, California, started operating its 10½ cu. ft. bucket-line dredge late in September, according to H. B. Murphy, who represents the three corporations interested in the mine. These corporations are the Sunshine Mining Company of Idaho, the Lehman Corporation of New York and the Idaho-Canadian Dredging Company of Idaho, of which Murphy is president. The dredge, which was dismantled near Junction City and moved to the present site, has been greatly improved. A new camp, warehouses and shop have been built and 28 Yuba jigs supplied for gold concentration. Fairview men expect to work the dredge for several years in the Minersville area. H. C. Young is in charge of operations.

An asbestos processing mill is being installed at Eagle Roost Point

Continued on Page 80

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### Statement of Ownership

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, as amended by the acts of March 3, 1913 and July 2, 1946, of MINING WORLD, published monthly, with two issues in April, at San Francisco, California, for November, 1949, State of California, city and county of San Francisco. Before me, a Notary Public in and for the State and county aforesaid, personally appeared Wm. B. Freeman, who, having been duly sworn according to law, deposes and says that he is the General Manager of the MINING WORLD and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, as amended by the acts of March 3, 1913, and July 2, 1946, section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Trade Journals, Inc., 121 Second Street, San Francisco 5, Calif.; Editor: John B. Dorsh, 121 Second Street, San Francisco 5, Calif.; Managing Editor: None; General Manager: Wm. B. Freeman, 121 Second Street, San Francisco 5, Calif.; Business Manager: Max F. Holsinger, 121 Second Street, San Francisco 5, Calif.

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in

any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions upon which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and that affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

WM. B. FREEMAN, General Manager.  
(Seal)  
Sworn to and subscribed before me this 27th day of September, 1949.  
HAZEL TROWBRIDGE,  
Notary Public in and for the City and County of San Francisco, State of California. My commission expires October 4, 1952.

## Southwest

Continued from Page 78

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**BELT CONVEYORS**  
1—14", 20' centers, new belt, V-belted to 1 1/2" HP motor.

1—24", 15' centers, motorized  
1—30", 70' centers, motorized  
1—42", 20' centers, motorized  
1—24" x 5 1/2" centers magnetic pulley feeder conveyor, with charger

**PUMPS—CENTRIFUGAL**  
2—2RV-1 Ingersoll-Rand motor mounted  
2—1 1/2 RV-3 Ingersoll-Rand motor mounted  
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2—6" Allen-Sherman-Hoff Hydrosal Slurry Pumps—motorized  
1—8" Allen-Sherman-Hoff Hydrosal Slurry Pump—motorized

**FILTERS**  
1—4", 6-disc, Eimco, with Vacuum Equipment, new sectors and sector bags

**THICKENERS**  
1—16" x 10' Dorr, steel superstructure, wood tank  
1—20" x 8' Dorr type, steel superstructure, wood tank  
1—20" x 8' Booth-Thompson, steel superstructure, wood tank  
(All units complete with motors and pumps)

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4—6' x 8' Center Well Agitators, wood tanks, steel "A" frames, with 15 HP vertical motors  
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**WAGON DRILLS**  
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1—22 Single Drum Vulcan Hoist, with 40 HP Gen. Elec. single speed motor (used on man cage)  
1—Drag Chain Loader 37' centers, with half-moon flights through 6" pipe—all mounted on structural steel frame—motorized  
2—New 18" x 36" Harts lig  
1—75 HP Gen. Elec. Motor, 3-ph., 60 cy., 440 volts, 600 RPM, with starter  
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Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, as amended by the acts of March 3, 1933 and July 2, 1946, of MINING WORLD, published monthly, with two issues in April, at San Francisco, California, for November, 1949, State of California, city and county of San Francisco. Before me, a Notary Public in and for the State and county aforesaid, personally appeared Wm. B. Freeman, who, having been duly sworn according to law, deposes and says that he is the General Manager of the MINING WORLD and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946, section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Trade Journals, Inc., 121 Second Street, San Francisco 5, Calif.; Editor: John B. Dorsch, 121 Second Street, San Francisco 5, Calif.; Managing Editor: None; General Manager: Wm. B. Freeman, 121 Second Street, San Francisco 5, Calif.; Business Manager: Max F. Holsinger, 121 Second Street, San Francisco 5, Calif.

2. That the owner is: American Trade Journals, Inc., 121 Second Street, San Francisco 5, Calif.; Miller Freeman, 121 Second Street, San Francisco 5, Calif.; Wm. B. Freeman, 121 Second Street, San Francisco 5, Calif.; Kemper Freeman, 121 Second Street, San Francisco 5, Calif.; Miller Freeman, Jr., 121 Second Street, San Francisco 5, Calif.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in

any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions upon which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

WM. B. FREEMAN, General Manager.  
(Seal)  
Sworn to and subscribed before me this 27th day of September, 1949.

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Denver 2, Colorado

associated with Karl Dodge of Dodge Construction, Inc., in the development of the Andre-Rodgers placer properties in Esmeralda County, Nevada. These people have a lease, with an option to buy, on the holdings, and if a sufficient water supply can be provided the Dodge company will bring in the necessary machinery for operation.

Newmont Mining Corporation at Goldfield, Nevada, has run most of the stockpiled Red Hill Florence Mining Company ore through its mill (about 400 tons) with assays on the ore running all the way from \$25 to \$1,000 a ton. Red Hill Florence leases and works a section of Newmont's White Rock property, while the remaining portion undergoes exploration

and expansion by Newmont. The mill is treating about 100 tons of ore per day from various properties, including its own. Concentrates, which are trucked to the Utah smelter, average 50 tons weekly. Newmont is reported to have leased some Candalaria properties, to be explored and developed immediately.

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NEW MEXICO

Metals, Inc., a company being formed to develop a mineralized area in the Mill Canyon Mining district of Socorro County, New Mexico, has commenced drilling operations as part of its development program. Core drilling of the little known area is planned as well as the driving of three main tunnels. The property, first discovered in 1882, consists of approximately 30 mining claims yielding lead and copper in sulphides, gold, silver, carbonates and oxides. S. S. Thurmond, Jr., of Hot Springs will be consulting geologist.

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Fully equipped, including 100-ton Mill, Electric Locomotive, Ore Cars, Air Compressor, etc.  
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Asst. Mill Supt., Ign.	6,000-8,000
Asst. Mine Manager, Ign.	Open
Asst. Mine Supt., E. M., Ign. (2)	\$500-\$550
Mine Engr., Ign., 1 Chl.	400
Master Mech., mine, Ign. (2)	\$400 & \$450
Mine Shift Bosses, Ign.	275
Mine Foreman, E. M., Ign. (2), house and	400
Metallurgist, Ign.	300
Mill Foreman, Ign.	400
Smelter Field Engineer, Ign.	\$450-500
Mine Foreman (4), Ign., E. M.	350-400
Jr. Mine Engr., sig., Ign.	240
Cyanide Flot. Shifters, Ign.	\$275-365
Construction Engr., expd., perm.	325
Safety Engr., mine exp.	Open
Refinery Foreman (3), smelting, Ign.	350
Mine Electrician, Ign.	400
Mine Engr., Ign.	300
Mine Met. Auditor, Ign.	500
Mine Warehouse Chl., Ign., Span. (2)	\$400-425
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- 1-2 1/2-ton Whitcomb Battery Locomotive, 24" gauge
- 1-7-ton Mancha Battery Locomotive, 36" gauge
- 2-7-ton General Electric Battery Locomotives, 36" gauge
- 2-8-ton General Electric Battery Locomotives, 36" gauge
- 4-10-ton Atlas Battery Locomotives, 36" gauge
- 1-3-ton Ruth Gasoline Locomotive, 18" gauge
- 1-3-ton Whitcomb Gasoline Locomotive, 24" gauge
- 3-6 1/2-ton General Electric Trolley Locomotives, 36" gauge

#### ELECTRIC MINE HOISTS

- 2-Vulcan #22C single drum, 40 HP
- 1-50 HP Fairbanks-Morse single drum
- 1-Vulcan #4 1/2 single drum, 52 HP
- 1-Vulcan #23 ELF single drum, 60 HP
- 1-150 HP single drum, rope pull 8000#
- 1-Vulcan single drum 125-165 HP, 5000-7000# rope pull, 700 FPM
- 1-Vulcan single drum 60-100 HP, 5500# rope pull, 300-500 FPM
- 1-Vulcan #1 1/2, 22 HP, double drum
- 1-300 HP Ottumwa double drum
- 1-Vulcan double drum, 125-165 HP, 5000-7000# rope pull, 700 FPM

#### FILTERS

- 1-3'x4' Oliver Drum Filter
- 2-6'x2 disc American Disc Filters
- 1-4'x3 disc Morse Filter

#### JAW CRUSHERS

- 1-8" x 6" Universal, semi-steel
- 1-9" x 16" Cedar Rapids, all steel
- 1-8" x 16" New Morse
- 1-8" x 24" Rogers, cast steel
- 1-8" x 36" Universal, all steel
- 1-15" x 20" Universal, all steel
- 1-10" x 24" Allis-Chalmers
- 1-24" x 36" Traylor, Type A Blake
- 1-9" x 15" Farrell Blake
- 1-9" x 36" Cedar Rapids

#### FINE REDUCTION CRUSHERS

- 1-2' 4" Traylor type TY Reduction Crusher
- 1-3' Symons Cone Crusher

#### BALL AND ROD MILLS

- 1-30" x 24" new Morse Bros. batch ball mill
- 1-4' x 4' new Ball Mill
- 1-No. 64 1/2 Marcy Ball Mill
- 1-6" x 8" Marcy Ball Mill
- 1-8" x 22" Hardinge Conical Pebble Mill
- 1-3' x 8' DeLo
- 1-3' x 9' Ruth Rod Mill
- 2-6' x 36" Hardinge Conical Ball Mills
- 1-5'x36" Hardinge Conical Ball Mill

#### TUGGER HOISTS

- 5-Size EU I-R "Utility" Air Hoists
- 1-Model 6HC I-R "Little Tugger" Air Hoist
- 1-Size A4NM-OJ Ingersoll-Rand 2 Drum Air Slusher Hoist
- 1-5 HP Sullivan Slusher Hoist Class RH, 3/60/220-440
- 1-HP Ingersoll-Rand 2 Drum Slusher Hoist, model 5 NNOH, 3/60/220/440
- 3-6 1/2 HP Sullivan Single Drum Tugger Hoists, type HE, 250 volts DC
- 9-6 1/2 HP Sullivan Double Drum Tugger Hoists, type HDE, 250 volts DC
- 1-7 1/2 HP Sullivan Slusher Hoist, class RH, 3/60/220-440

- 2-7 1/2 HP Ingersoll-Rand Slusher Hoists, size 107, 3/60/220-440
- 1-20 HP Ingersoll-Rand 3 Drum Slusher Hoist, model 20 MNM-2D, 3/60/220-440

#### PUMPS

- 2-2" Wilder Sand Pumps
- 1-3" x 3" Allen-Sherman-Hoff "Hydro-seal" rubber lined sand pump
- 1-4" x 4" Allen-Sherman-Hoff "Hydro-seal" sand pump
- 2-4" Butchart Diaphragm pumps
- 5-1" new I-R centrifugal motor pumps
- 30-1 1/2" Deming centrifugal pumps
- 1-2" Duriron centrifugal acid resistant pump
- 1-3" Goulds centrifugal pump
- 1-4" Aurora American centrifugal pump
- 7-5" Ingersoll-Rand motor pumps
- 1-6" Krogh centrifugal pump
- 1-12" Morris centrifugal dredging pump
- 1-2" 6-stage Union centrifugal pump
- 7-3" 5-stage United centrifugal pumps
- 2-6" Manitex 8-stage centrifugal pumps 900 GPM, 1.150' head, direct connected to 400 HP G.E. motors
- 1-7" x 12" Worthington "Deane" horizontal duplex power pump
- 1-6" x 7" Aldrich triplex pump
- 3-2 1/2" #35 I-R air driven sump pumps
- 2-4" x 4" x 2 1/2" I-R vacuum pumps
- 1-7 1/4" x 4" C.I.W. vacuum pump
- 8-2" new Jaeger portable self priming pumps direct connected to 2 1/2 HP Waucongan gas engines
- 2-2 1/2" x 1 1/2" Economy 4-stage pumps direct driven by 59 HP Chrysler gas engines
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